# PHYSICAL PROPERTIES OF CHEMICAL COMPOUNDS

A systematic tabular presentation of accurate data on the physical properties of 511 organic cyclic compounds compiled by R. R. Dreisbach of the Dow Chemical Co. These comprehensive and basic data were determined for specially prepared, high purity compounds. In addition to the precisely measured properties the author has calculated new values for many constants based upon his new experimental values.

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# Physical Properties Of Chemical Compounds

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## Definition of the Symbols and Parameters Used, with the Methods of Calculating the Parameters

Mol. % Pur.: Mole % purity by weight.

F.P.: Freezing point, ° C.

F.P. 100%: Freezing point curve extrapolated to 100% purity.

B.P. 760 mm., 100 mm., etc.: Boiling points at these pressures, ° C.

P25: Pressures at 25° C., in mm.

Po: Pressure corresponding to temperature to in mm.

d<sup>20</sup>, etc.: Density at 20° C., etc., g./ml.

a, b: Constants of Law of Rectilinear Diameters,  $d_v + d_L = a + bt$  $d_v = density$  of the vapor, g./ml.;  $d_L = density$  of the liquid, g./ml.

n<sub>D</sub><sup>20</sup>, etc.: Refractive index for the sodium line at 20° C., etc.

"C": Constant of the Eykman equation,  $(n_D^2 - 1)/(n_D + 0.4) \times 1/d =$  "C"

MR (obs.): Molal refraction (obs.) =  $(n_D^2 - 1)/(n_D^2 + 2) \times M/d = MR$  at 20° C. (M = mol. wt.)

MR (calc.): Molal refraction calculated from atomic refractive indices. See page 9.

- $(n_D d/2)$ : Refractivity intercept equals refractive index minus one half the density, both at the same temperature, 20° C.
- D: Dielectric constant run at a frequency of 10<sup>5</sup> (cycles/sec.) and at 25° C. unless otherwise noted. When reported as data of The Dow Chemical Co., error about ±0.005. Where Reference 5 is noted it was obtained by squaring the refractive index at 20° C.
- A, B, C: Constants of the Antoine vapor pressure equation for the liquid state, giving P (pressure) in mm. and t (temperature) in °C. This is in the range between the temperatures as indicated. These temperatures in general are the boiling point at 30 mm. to a  $T_R$  of 0.75 to 0.80. See method of obtaining A, B, C on page 6. Antoine equation:  $\log P = A B/(t + C)$
- A\*, B\*, K, c, tk, tx: Constants of the saturated vapor density equation

 $\log d_v(g./ml.) = A^* - B^*/(t + C)$  to the temperature  $t_k$ 

$$\log d_v(g./ml.) = A^* - B^*/(t + C) + K/(1.1 T_C - 273.2 - t) + C$$

from temperature tk to a reduced temperature, TR, of 0.92

 $t_k$  = Temperature at which it is necessary to change from the simple vapor density equation to the corrected vapor density equation in the higher ranges, ° C.

$$t_k = t_x + K/c$$
 and  $t_x = (1.1 T_C - 273.2)^{\circ} C$ .

A\* and B\* where the latent heat at the atmospheric boiling point is available.

$$Vg - V_L = (31381.7 \times \Delta Hv \times dt/dp)/T$$

Where the latent heat is not available use

 $M(\Delta Hv)/T_B = 21.0$  and from this  $\Delta Hv = (T_B \times 21.0)/M$ 

The value 21.0 (or any other value as 21.4 say) is obtained from the nearest related compound which has a latent heat available. Then proceed as in case where latent heat is available for Vg value at B.P.

Since  $d_v = 1/Vg$ 

 $\log d_{v760} = A^* - B^*/(t_B + C)$  at 760 mm.

 $\log d_{v30} = A^* - B^*/(t_{30} + C)$  at 30 mm.

Solve for A\*, B\*, since t and d, at 760 mm. and 30 mm. and C are known.

- A', B', C': Constants of the Antoine vapor pressure equation below 30 mm. pressure, covering the temperature range as indicated. See method of obtaining the constants on page 6.
- A'\*, B'\*: Constants of the vapor density equation below 30 mm. These two values are obtained by using the boiling point at 30 mm. and the pressure at 25° C. (obtained from the values A', B', C') and assuming that at 25° C. the relationship PV/RT = 1. Then we have Vg at 25° C. = RT/MP = 62,361 × (25 + 273.2)/MP.

Then dv = 1/Vg. Inserting these values of vapor density we then solve the two equations for the values of  $A'^*$  and  $B'^*$  as in the case of  $A^*$  and  $B^*$ .

- Ac, Bc, Cc: Constants of the Antoine vapor pressure equation for the liquid state from  $T_R = 0.75$  (or a higher  $T_R$  as indicated) to the critical temperature. See method of obtaining the constants on page 7.
- Cryoscopic Constants, A°, B°: Cryoscopic constants for calculating mole % purity. See J. Research Natl. Bur. Standards, 35 (1945); RP 1676.

te° C.: Temperature at which a mole of the vapor occupies 22.414 liters and the vapor is in equilibrium with the liquid, in ° C.

$$te = \frac{B^*}{(A^* - \log dv_{\bullet})} - C$$

dt/dp: Rate of change of boiling point with pressure, given by equation  $dt/dp = B/[2.3026 \times P \times (A - \log P)^2]^{\circ} C./mm$ .

ΔHm: Latent heat of fusion in cal./g.

ΔHv: Latent heat of vaporization at the temperature designated, cal./g.

 $t_{\bullet}(d, e)$ : The latent heat of vaporization at the temperature  $t_{\bullet}$  as given by the equation  $\Delta Hv = d - et$ , and indicates the accuracy of this equation at the temperature  $t_{\bullet}$ .

ΔHv/T<sub>e</sub>: Molal latent heat of vaporization at t<sub>e</sub> divided by T<sub>e</sub>. (Equal to the molal entropy of vaporization at t<sub>e</sub>.)

d, e; d', e': These are parameters of the latent heat of vaporization equation, ΔHv-(cal./g.) = d - et. This is valid between the temperatures indicated. It has been found that the latent heat between the boiling point at 30 mm. and the boiling point at 760 mm. is almost a linear function of the temperature. As seen in most cases this equation holds almost to the temperature t<sub>e</sub>. Above and below this the latent heat is not linear with temperature except for short intervals.

de: Critical density, g./ml.

ve: Critical volume, ml./g.

to: Critical temperature, ° C. See also page 7.

P. mm.: Critical pressure in mm. Where this was not obtained from the literature it is calculated as follows (The Thomson method, private communication from George W. Thomson): The critical temperature is inserted in the Antoine equation, using the A, B, and C values to calculate the critical pressure.

This value is too low. This is then multiplied by 1.07 and is assumed to be the critical pressure. In the great majority of cases, this will agree with determined values to within  $\pm 3\%$ . For high boiling compounds this value must be decreased, since in most cases there is somewhat irregular drift with increasing temperature, so this should be continually lowered as the boiling point becomes increasingly higher.

PV/RT: Compressibility at the temperature designated.

z = PV/RT

where P = pressure in mm., V = volume in ml./mole, and R = 62361.

ΔHc: Heat of combustion, kcal./mole, gas at constant pressure, 298.16° K. or 25° C.

ΔHf: Heat of formation, kcal./mole, liquid at 298.16° K. or 25° C.

ΔFf: Free energy of formation, kcal./mole, liquid at 298.16° K. or 25° C.

7: Kinematic viscosity in centistokes, at temperature designated. The kinematic viscosity is given by the equation

$$\log \eta = A^{v} + B^{v}/T$$

between the temperatures indicated to an accuracy of 1% or better.

B.P. °C., 30 mm.; dt/dp; ΔHv; PV/RT: These values at 30 mm. are calculated from the Antoine equation using A, B, and C. It has been found that at 30 mm. in almost all Cox Chart Families the ratio PV/RT is negligibly different from one. This, then, has been taken as one point (the other point being the B.P. at 760 mm.) from which to calculate A\* and B\*, always assuming the compressibility as 1.0000 at 30 mm.

- c<sub>p</sub>: Specific heat at constant pressure at temperature designated, cal./g. ° K.
- cv: Specific heat at constant volume at temperature designated, cal./g. ° K.
- f, g, h, f', g', h': Parameters of the heat content equation for the liquid for the temperature ranges designated, ° K.

 $c_p \text{ (liquid)} = f + gT + hT^2$ 

m, n, o, m', n', o': Parameters of the heat content equation for the vapor for the temperature ranges designated, ° K.

 $c_p \text{ (vapor)} = m + nT + oT^2$ 

 $\gamma$ : Surface tension in dynes/cm., at temperature designated.

[P]: Parachor at the temperature designated:

 $M(\gamma)^{1/4}/(d_L - d_v) = [P]$ 

[P] Sugd.: Parachor from atomic and structural values as given by Sugden. See Table. The parachor value for oxygen as hydroxyl (alcohols) in these tables is taken as 15. Sugden gives the values of 20 for oxygen and 30 for oxygen in esters, which does not seem to work for alcohols and phenols.

Exp. L.l.; Exp. L.u.: Explosion limits lower and upper range, % by wt.

Dispersion: Specific dispersion,  $10^4(n_F - n_C)/d$ , ml./g. at 25° C.

n<sub>F</sub>, n<sub>C</sub> = refractive index for F and C lines.

d = density, g./ml.

Flash and Fire Points, °C.: Cleveland open cup (ASTM D 92-46) if not otherwise designated. Closed cup (ASTM D 56-36) will be designated as such.

M Spec.: Mass Spectrograph.

Ultra V.: Ultraviolet.

X-Ray Dif.: X-Ray Diffraction.

Infrared: Infrared Spectrograph.

Solubility at 25° C., in solvents as designated.

Explanation of the methods used for calculating the various parameters in the foregoing:

A, B, C: The A, B, and C constants, except where given by the API reports, are calculated by means of the Thomson method [Chem. Revs., 38, 1-39 (1946)] using the determined boiling points at three different pressures. The three formulas for this are as follows:

$$(y_3-y_2)/(y_2-y_1)\cdot(t_2-t_1)/(t_3-t_2)=1-(t_3-t_1)/(t_3+C)$$
 B =  $(y_3-y_1)/(t_3-t_1)\cdot(t_1+C)(t_3+C)$  and A =  $y_1+B/(t_1+C)$ 

where  $y_1$ ,  $y_2$ , and  $y_3$  are equal to  $\log P_1$ ,  $\log P_2$ , and  $\log P_3$  at temperatures  $t_1$ ,  $t_2$ , and  $t_3$ . Unless the data for the three points are very accurate the C value can be considerably in error. As a check on this method an empirical formula developed by Thomson (private communication from George W. Thomson) will give a much better value of C if the data are much in error. This formula is  $C = 239 - 0.19t_B$ . The A and B values can then be readily determined from the two points given, since they are much less critical.

A', B', C' (for pressures below 30 mm.): Applicable when molar heats of vaporization are available at 25° C. and the Antoine equation can be used to obtain the boiling point at 30 mm. Let A, B, C be the constants of the usual Antoine equation valid above 30 mm. and let A', B', C' be the constants of the Antoine equation sought for below 30 mm. These two equations are taken to give the same value of the pressuretemperature slope at 30 mm.

$$\log 30 = A - B/(t_1 + C) = A' - B'/(t_1 + C')$$
  
B/(t<sub>1</sub> + C)<sup>2</sup> = B'/(t<sub>1</sub> + C')<sup>2</sup>

Since PV/RT may be assumed to be 1.0000 at  $t_i$ , the temperature corresponding to 30 mm., and is also 1.0000 at 25° C., the molar heat of vaporization at 25° C.,  $M\Delta Hv_2$ , is given by

 $M\Delta Hv_2 = 2.3026 \text{ RB}' [(t_2 + 273.2)/(t_2 + C')]^2$ where  $t_2 = 25^{\circ}$  C. To solve for A', B', C' let  $g_2 = M\Delta Hv_2/2.3026 \text{ R}(t_2 + 273.2)^2 = M\Delta Hv_2/406883 \text{ if } t_2 = 25^{\circ}$  C. Also  $g_2 = B'/(t_2 + C')^2$ 

Since  $t_1$ ,  $t_2$  and all values on left hand side of equations above are known then B' and C' are readily obtained as follows:

 $\begin{array}{l} [B'/(t_2+C')^2][(t_1+C')^2/B']=g_2\,(t_1+C')^2/B'=say,\,h^2\\ Then\,\,C'=(t_1-ht_2)/(h-1)\,\,and\,\,B'=g_2(t_2+C')^2\\ Also\,\,B'=B[(t_1+C')/(t_1+C)]^2 \end{array}$ 

 $A' = \log 30 + B'/(t_1 + C')$  since  $P_1 = 30$  mm. These formulas were developed with the aid of George Thomson.

When heats of vaporization at 25° C. are not known:

In this case the C' value is estimated and A' and B' are calculated from known data. It was noticed that C' has a value approximately 18 higher than C when latent heats at 25° C. are known. By adding this increment to C we have C', then B' from the relation for the first case

 $B' = B[(t_{30} + C')/(t_{30} + C)]^2$  and then A' as in first case.

Ac, Bc, Cc: This method was developed by George Thomson [Chem. Revs., 38, No. 1, 23 (1946)] and is similar to the one for obtaining A', B', C'. It is assumed that the parameters A, B, C of the Antoine equation are good to a T<sub>R</sub> 0.75 or a higher reduced temperature, and this temperature corresponds to the 25° C. in the case of A', B', C', and the critical point corresponds to the 30 mm. point.

 $B/(t_1 + C)^2 \cdot (t_c - t_1)/(y_c - y_1) = 1 + (t_c - t_1)/(t_1 + Cc)$ and  $Bc = (y_c - y_1)/(t_c - t_1) \cdot (t_1 + Cc)(t_c + Cc)$ ;  $Ac = B/(t_c + Cc) + y_c$ where  $t_1 \circ C$ . =  $T_R 0.75$ ,  $t_c \circ C$ . = critical temperature  $y_1 = \log P$  at  $t_1$ ,  $y_c = \log P_c$ 

The first equation is used to evaluate Cc, the second, Bc, and the third, Ac.

Association: The association in the vapor phase of organic acids seems to vary inversely as the temperature for some acids, at least for part of the range. In part of the range, and also apparently for some acids over the whole range, the association is fairly constant. The association is given in these sheets by the formula  $M_x = p - rt$ . For instance, for acetic acid this formula would be  $M_x = 2.225 - 0.004085$  t from 0° C. to  $100^{\circ}$  C. From  $100^{\circ}$  C. to a  $T_R$  of 0.92,  $M_x = 1.85$ . That is to say, the vapor density as calculated by the A\*, B\* formula would have to be multiplied by this correction factor to take care of the association. Further, if the reciprocal of the density is used as calculated to give vapor volume, it would be necessary to divide by 1.85 to get the actual vapor volume.

t<sub>c</sub>: Where the critical temperature has not been determined, it is calculated by Watson's equation:

 $T_e/T_c = 0.283 (M/d_e)^{0.18}$ 

where  $d_{\bullet} = \text{liquid density, g./ml.}$  at the boiling point, and M = molecular weight. This is used for all hydrocarbons and halohydrocarbons.

f, g, h, m, n, o, etc.: For a short temperature range the equation  $C_p = f + gT + hT^2$  reproduces almost exactly determined data. The parameters were set up on the IBM machines using eight determined values where that many or more were available.

The IBM machines were used to set up the Antoine constants from determined data. A preliminary C value was obtained from the equation C = 239. —  $0.19t_B$ . A and B were then obtained and new C values either side of the first C used and new A and B values found. In each case above, the boiling points at the experimental pressures were calculated and compared with the determined boiling points.

Actually the value of C was generally obtained from  $C = 239. - 0.19t_B$ , since the determined values must be very very accurate to give better values of C.

#### Cox Chart Families

- 1. Alkyl and halo benzenes
- 2. Styrenes
- 3. Thiaalkyl benzenes
- 4. Thiophenes
- 5. Alkyl naphthalenes
- 6. Tetrahydronaphthalenes
- 7. Decahydronaphthalenes
- 8. Aromatic phenols
- 9. Thiophenols
- 10. Aromatic amines
- 11. Nitrobenzenes

- 12. Aromatic alcohols (Phenyl ethyl alcohols)
- 13. Aromatic ketones
- 14. Aromatic esters
- 15. Cyclopentanes
- 16. Cyclopentenes
- 17. Thiacyclopentanes
- 18. Thiacyclopropanes
- 19. Cyclohexanes
- 20. Cyclohexener
- 21. Thiacyclohexanes
- 22. Miscellaneous

### Atomic Refractive Indices Used for Computing Molecular Refractive Index

All values are for the sodium line.

Carbon singly bound and alone	2.592	NO as nitrites	5.91
Carbon singly bound	2.418	NO as nitrosoamine	5.37
Carbon double bond	1.733	NO <sub>2</sub> as alkyl nitrite	7.44
Carbon triple bond	2.398	NO <sub>2</sub> as alkyl nitrate	7.59
Carbon conjugated	1.27	NO <sub>2</sub> as nitro paraffin	6.72
Hydrogen	1.100	NO <sub>2</sub> as nitro aromatic	7.30
Oxygen—hydroxyl	1.525	NO <sub>2</sub> as nitramine	7.51
Oxygen—ethereal	1.643	Fluorine	0.95*
Oxygen—ketonic	2.211	Chlorine	5.967
Oxygen—as ester	1.64	Bromine	8. <b>865</b>
Sulfur—as SH	7.69	Iodine	13.900
Sulfur—as RSR	7.97		
Sulfur—as RCNS	7.91		
Sulfur—as RSSR	8.11		
Nitrogen			
as aliphatic primary amine	2.45		
as aromatic primary amine	3. <b>2</b> 1		
as aliphatic secondary amine	2.65		
as aromatic secondary amine	3.59		
as aliphatic tertiary amine	3.00		
as aromatic tertiary amine	4.36		
as hydroxylamine	2.48		
as hydrazine	2.47		
as aliphatic cyanide	3.05		
as aromatic cyanide	3.79		
as aliphatic oxime	3.93		
as primary amide	2.65		
as secondary amide	2.27		
as tertiary amide	2.71		

<sup>\*</sup> This value for one fluorine atom attached to carbon. The value 1.1 is to be used for each fluorine atom in polyfluorides.

#### Atomic and Structural Constants for Calculation of Parachor

	Sugden	Sugden
CH <sub>2</sub>	39.0	Br 68.0
C	4.8	I 91.0
H	17.1	Single bond
0	20.0	Double bond 23.2
O (Alcohol)	15.0	Triple bond 46.6
O <sub>2</sub> (Ester)	60.0	3-Membered ring 16.7
N	12.5	4-Membered ring 11.6
N (Nitrile)	14.4	5-Membered ring 8.5
S	48.2	6-Membered ring 6.1
<b>F</b>	25.7	7-Membered ring
Cl	<b>54</b> .3	Aliphatic alcoholsubtract 6.0

TABLE I. ALKYL AND HALO BENZENES

							No. 1
NAME	Benzene					STRUCTURAL	FORMULA
Mole % Pur. 99	Ref. Moi 2 For	_	C6H6 V	Molecular Veight 78,108	_		
	1	Ref.			Ref.	<del></del>	Ref.
F.P. C F.P. 100%	5,533	2	dt/dP °C/mm 25°C	0.3374	5	f 270 to	
B. P. *C 760 mm	80,100	2	BP	0,2276 0,04272	2	h	0.0669 4
100	26.075	2	te	0.0355	5	f' to	
30 10	2.30	4 5	30 mm	0.5949	4	8'   ''	<u> </u>
1	-45.	5	ΔHm cal/g	30.09	2	m   300 to	-0.1030 4
Pressure			ΔHv cal/g 25°C	103,57	2	n   <u>  700</u> °1	K 0.0014 4
mm 25°C	95.18 964.4	5	30 mm	108.19	4	0	-0.0671 4
Density	+ /***	-	BP	94.14 92.65	2 5	m' 700 to	0.445 4
g/ml 20°C		2	te te (d, e)	92.71	5	n' 1100 •1	K 0.0 <sub>3</sub> 94 4 -0.0 <sub>6</sub> 34 4
dt 25 4 30	0.87370 0.86837	2	ΔHv/T <sub>e</sub>	20.03	5		0.060
. 50	0.90025	4	d 25 to	107.85	5	Surface tension dynes/cm. 20°C	
Ъ	-0.00105	4	-i % <del>:</del> :	0.1711	5	¥ 30	27.49 2
Ref. Index			e¹ 25 °C	0.2088	5	40	26.14 2
<sup>n</sup> D 20°C	1.50112	2	d <sub>c</sub> g/ml	0.300	2	Parachor [P]	206.06 4
30	1.49468	4	vc ml/g tc *C	3.333 289.45	2 2	30	206.10 4
"C"	0.7500	4	P <sub>c</sub> mm	36936.	2	40 Suga	206.11 4 1.207.1 5
MR (Obs.)		2	PV/RT		-	Exp. L.1.%/wt	
MR (Calc. (nD-d/2)	1.06162	2	25°C	0.9922	4	u.	7.7 3
Dielectric	2.283	1	30 mm BP	1,0000 0,9658	5 4	Dispersion	189.2 2
A 0 to	6.90565	2	t <sub>e</sub>	0.95 <b>9</b> 6	5	Flash Point *C Fire Point	<b>≠</b>  -11.   3 <sup>2</sup>
B 1160 °C	1211.033 220.79	2	te c AHc kcal/m	0,274	2	M. Spec.	Yes 1
A* 15 to		4	ΔHc Kcal/m	757.52 11.718	2 2	Ultra V.	Yes 1 Yes 1
B*[150 °C		4	ΔFf	29.756	2	X-Ray Dif. Infrared	99.
K	25.0 -0.1 <b>3</b> 147	4	Viscosity centistokes			Solubility in +	
t <sub>k</sub> 150 to	155.	4	7 20 °C	0.7427	1	Acetone Carbon tet.	<b>60</b>
€ 245 °C	345.8	5	30	0.6592	1	Benzene	eo eo
A'   to B' C			50 70	0.5156 0.4148	1	Ether n-Heptane	<b>60</b>
c, '			B <sub>v</sub> 25 to	52 <u>3</u> .4	4	Ethanol	80 80
A'* to			A   80 °C	2.09290	4	Water # Water in	
Bi* °C	+	<del> </del>	(B <sup>V</sup> )  to			#	0,226 3
Acl 160 to Bc t <sub>c</sub> *C		5	(A <sup>V</sup> )  °C	<del> </del>	-	77	0.220
Cc	279.56	5	c <sub>p</sub> liq. 300 °K 320	0.4178 0.4315	3 <sup>2</sup>		
Cryos. A	-,	2	c vap.300°K	0.2516	2		
consts, B	+	2	c <sub>v</sub> vap.	0.3424	2		
t <sub>e</sub> °C T <sub>R</sub> = 0.7	88.04 7 T	5	<u> </u>	L	L	+	
	CES: 1-Dow		<pre> # closed cup PI 3-Lit, 4-0 ### PI 4-0 ####################################</pre>	Calc from de	+ 4-	grams/100 grams/	
SOURCE:	UEG: 1-DUW		PI 3-Lit. 4-	Care, from de		J-Carc. by I	
PURIFICA	TION:		.PI				
	RE REFERE			73 1572 /10	E 1 1 .	21 Chart Mar	F 44 13
I	3 <sup>2</sup> Timmern		3. 3 J. A. C. S	. <u>/3</u> , 15/3 (19	·51);	3' Chem. Met.	Eng. 44-12,
L							

							No. 2	$\neg$
NAME	Toluene					STRUCTURAL	FORMULA	
	Methylber	zen	e			Co	н <sub>3</sub>	
Mole	Ref. Mol	ecul		Molecular			J	
% Pur. 99.9	99 2 For	mul	<u> </u>	Weight 92.134	_		Re	늵
	1	Ref.		I	Ref			$\dashv$
F.P. °C F.P. 100%	-94.991	2	dt/dP *C/mm 25*C	0,6808	4	f 5 to g 110 K	-0.0 <sub>3</sub> 59 4	4
B.P. °C 760 mm	110.625	2	BP	0.0463	2	h	0.0521 4	4
100 30	51.944	4	t <sub>e</sub>	0,0360	5	f'		
10	26.04 6. <b>3</b> 7	4 5	30 mm	0.6487 17.17	2	h'		
1	-26.1 ?	5	ΔHm cal/g ΔHv cal/g	17.17	-	m   300 to		4
Pressure mm 25°C	28, 437	4	25°C	98.55	2	n 1700 •K		4 4
t <sub>e</sub>	1048.2	4	30 mm BP	97.9 86.80	5 2	<u> </u>	l ° l	_
Density	2.24424	_	t,	84.73	5	m'   700 to n'   1100 'K	0.0471 4	4 4
g/ml 20°C	0.86694 0.86230	2	, (a, e)	85, 17	5	0'		4
d <sub>4</sub> 25 30	0.85757	4	ΔHv/T <sub>e</sub>	19.74	5	Surface tension	<del>  -</del>	ㅓ
a b	0.88547	4	d 25 to 25 to 130 °C	101.98 0.1372	5	dynes/cm. 20°C		2
Ref. Index	-0.0 <sub>3</sub> 924	4	d' to			30 40		2 2
B <sub>D</sub> 20°C	1.49693	2		0, 288	2	Parachor [P]		$\neg$
25 30	1.49414 1.49129	2	v ml/g	3.473	2	20°C 30		4
"C"	0,7545	4	t <sub>c</sub> ·C	320.8	2	40		4 4
MR (Obs.)	31,095	2	P <sub>c</sub> mm	30400.	2			5
MR (Calc.)	30.925	5	PV/RT 25°C	0.9968	4	Exp. L.1.%/wt.		3' 3'
(nD-d/2)	1.06346	2	30 mm	0.9966	4	Dispersion		ž
Dielectric A 20 to	2.379 6.95334	2	BP t <sub>e</sub>	0.9613 0.9522	4 5	Flash Point °C	4.44	31
A 20 to B 200 °C	1343.943	2	tc	0, 263	4	Fire Point	l	$\dashv$
С	219.377	2	AHc kcal/m	901.50 2.867	2 2	M Spec. Ultra V.		1
A* 20 to B*, 175 °C	1,27923 1252,3	4	ΔFf	27. 282	2	X-Ray Dif. Infrared	865.	1
K L L L	23.	5	Viscosity			Solubility in +	1885.	-
175 to	-0.11760 175.	5	centistokes 7 20 °C	0.67778	1	Acetone	• •	
t 270 °C	380.0	5	40	0.56457	1	Carbon tet. Benzene	<b>80</b>	
A' to			60 80	0.45825 0.39119	$\begin{vmatrix} 1 \\ 1 \end{vmatrix}$	Ether	· ·	
₽;' ∟ _ <u>°</u> ⊆	1		B <sup>V</sup>   40 to	440.66	4	n-Heptane Ethanol	80	
A¹+ to			AV   90 °C	2, 34476	1 - 1	Water	7.3 1	1
B'* *C			(B <sup>V</sup> ) to			Water in	0.055 1	1_
Ac   200 to	7.45657 1796.9	4	(A <sup>V</sup> )  °C		$\sqcup$			
Cc - c	284.62	4	c <sub>p</sub> liq. •K					
Cryos. A° consts. B°	0.02508 0.0019	2 2	c <sub>p</sub> vap. 300°K 400	0.2708 0.3609	2 2			
t <sub>e</sub> °C	122,34	5	c <sub>v</sub> vap.					
f closed cu	p					+ grams/100 gran		
REFERENC	ES: 1-Dow	2 - AI	PI 3-Lit. 4-C	alc. from det	da 1	ta 5-Calc. by for	mula	
SOURCE:		_AF	<u> </u>					
PURIFICAT		ΑF						_
LITERATUI	RE REFEREN	ICES	5: 3 NBS 514;	3' Nat. Fire	Prot	t. Assoc. 325 (194	9)	
								i

TABLE I. ALKYL AND HALO BENZENES

								No. 3	
NAME	Ethylben	zene				ST	RUCTURAL	FORMUL	A
							<b>∕</b> C.	.W.	
Mole % Pur. 99.		lecul		Molecular Weight 106, 10	60			2 <sup>H</sup> 5	
		Ref.		T	Ref.	$\Gamma$		***	Ref.
F, P, *C	-94, 975	2	dt/dP			ſ	to		
F.P. 100%			*C/mm			g	<u>.K</u>		
B. P. *C		١.	25°C BP	1.8286	5 2	h	L		
760 mm 100	136, 186 74, 10	2 2	t <sub>e</sub>	0.0360	5	f'	to		İ
30	46.69	4	30 mm	0.6866	4	g'	, – – • <u>k</u>		1
10 1	25.77 -9.2	5	ΔHm cal/g	20.63	2	h'			
Pressure	<del>                                     </del>		ΔHv cal/g			m n	300 to	-0.0734 0.0014	4
mm 25°C	9, 571	5	25°C 30 mm	95.11 93.00	2 4	•	<u></u>	-0.061	4
t <sub>e</sub>	1128.	5	BP	81.00	2	m'	700 to	0.0675	4
Density g/ml 20°C	0,86702	2	t <sub>e</sub>	78.97	5	n'	1000 *K	0.0079	
dt 25	0.86264	2	t <sub>e</sub> (d, e)	78.94	5	ە'	, ———- I	0.0 <sub>3</sub> 99 -0.0 <sub>6</sub> 35	4
<sup>4</sup> 30	0.85826	4	ΔHv/T <sub>e</sub>	19.74	5	Sur	face tension		
	0.88453	4	d 45 to	99.26 0.1341	4		es/cm. 20°C	29.04	2
b	-0.0387	4	d 15 to	97.54	4	▮ •	30 40	27.93 26.79	2
Ref. Index		2	e'   45 °C	+	4	Pa	achor [P]	20	Ť
25	1.49320	2	d <sub>c</sub> g/ml	0.29 3.448	2 2		20°C	284.3	4
30	1.4904	4	vc ml/g tc °C	346.4	2	Ì	30 40	284.4	4
"C"	0.7528	4	P <sub>c</sub> mm	28120.	2			284.3 285.1	4 5
MR (Obs.) MR (Calc.		2	PV/RT	-		Ex	L.1.%/wt.		
(nD-d/2)	35.543 1.06237	2	25°C 30 mm	1.0000	5	1	u.		_
Dielectric	2.238	5	BP BP	1,0000 0,9652	5		persion	174.7	2
A 45 to	6, 95719	2	t <sub>e</sub>	0.9547	5		sh Point C e Point	15.0	3
B   190 °C		2	tc	0, 266	2	<u> </u>	Spec.	Yes	1
A* 45 to	213, 206	2	ΔHc kcal/m	1048.53	2 2	Ult	ra V.	Yes	1
B*[ 160 °C	1.32502	5	ΔFf	28,614	2		Ray Dif. rared	507.	1
к ——-	-		Viscosity		i	<del> </del>	ubility in +		-
t <sub>k</sub> – to	-	1	centistokes り 20 °C	0.7823	2	A	etone	••	1
دُ <mark>لا</mark> °C			40	0.6305	2		rbon tet.	<b>60</b>	
A' 1 20 to	7. 32525	5	60	0.525	2		her	80	
B' 45 °C		5	B <sub>v</sub> 20 to	0.447	2		Heptane	60	
A'* 25 to	1,69224	5	B 20 to A 90 ℃	413.1 Z.48073	4		hanol ater	0.020	1
B'* 45 °C		5	(B <sup>V</sup> )  90 to	408.5	4	W	ater in	0.114	1
Ac  190 to	7.3729	5	(A <sup>V</sup> )1150 °C	Z. 49428	4	ll .			
Bc t <sub>c</sub> *C	1779.0 - 260.6	5	c <sub>p</sub> liq. *K	1	Ť	1			l
		-							
Cryos, A° consts, B°	0.03471 0.0029	2	c <sub>p</sub> vap.300 K 400	0. 29088 0. 38395	2 2				
te °C		5	c vap.	0.30373	້	l			
$T_{R} = 0.7$		<u> </u>	и	<u> </u>		+ #	rams/100 gra	ms solven	↓ ıt
	CES: 1-Dow	2-A	PI 3-Lit. 4-	Calc, from de	t. da				
SOURCE:		AF							
PURIFICA		AF							
			5: 3 Nat. Fire	Prot Assoc	325	(1940)	<u> </u>		
			J. J.Nat. FIFE	. 10t. A880C.	323	11777	1		

No. 4 NAME o-Xylene STRUCTURAL FORMULA 1,2-Dimethylbenzene CH<sub>3</sub> Molecular Mole Ref. Molecular C8H10 % Pur. 99.999 Weight 106,160 Formula Ref Ref. Ref F.P. °C F.P. 100% dt/dP -25, 182 ſ to °C/mm °K\_ g 25°C 2,545 B, P. °C 5 h BP 0.0497 2 760 mm 144.411 2 t<sub>e</sub> 0.0359 5 f to 100 81.31 2 g' ۰ĸ 30 30 mm 0.7002 53.38 4 4 10 32.0 5 h' 30.61 2 AHm cal/g 1 -3.7 5 300 to -0.0055 m AHv cal/g Pressure 1\_700 °K 0.0012 25°C n 97.79 2 mm 25°C 6.688 0 -0.0644 4 30 mm 95.05 1149. 5 te BP 82.90 2 700 to 0.0701 4 Density m' te (d, e) 80.75 5 0.0<sub>3</sub>97 -0.0<sub>6</sub>34 n' 17100 .K g/ml 20°C 0.88020 4 2 5 80.72 01 4 25 0.87596 2 dt4 AHv/T 5 19.75 30 0.87172 4 Surface tension Т 50 to 102.17 4 0.89715 dynes/cm. 20°C 30,03 2 160 •c 0.1334 Ъ -0.0<sub>3</sub>846 4 30 28.93 2 ď 1 10 to 100.21 27.84 2 40 Ref. Index e¹ 0.0967 50 •c 4 n<sub>D</sub> 20°C 1.50545 [P] 2 Parachor d g/ml vc ml/g 2 0.28 25 1.50295 2 20°C 282.4 4 ml/g \*C 3.58 2 30 1.50025 4 30 282.5 4 tc 359.0 2 40 282.5 4 "C" 0.7550 4 Pç Sugd mm 27360. 2 285.1 5 MR (Obs.) 35.800 2 PV/RT Exp. L.1.%/wt. 3 3.66 MR (Calc.) 35.543 5 25°C 1.0000 5 17.0 3 (nD-d/2) 1.06535 2 30 mm 1.0000 Dispersion 180 1 2 2.266 Dielectric 5 ВP 0.9630 4 Flash Point °C 27.0 5 te 0.9518 5 150 6. 99891 to 2 Fire Point tç 0.26 2 В 200 <u>•c</u> 1474.679 M Spec. 1 Yes C 213,686 2 AHc kcal/m 1045.94 2 Ultra V Yes 1 ΔHf -5.841 2 A\* 50 to 1.36031 5 X-Ray Dif. ΔFf 26.370 2 B\* 170 °C 1380.0 Infrared Viscosity Solubility in centistokes Acetone t<sub>x</sub> | to œ 20 0.919 2 Carbon tet. •c œ 40 0.724 2 Benzene 00 60 0.592 2 25 to 7.35638 Ether œ 0.497 80 2 B١ •c 1671.8 n-Heptane œ  $\mathbf{B}^{\overline{\mathbf{v}}}$ 1 25 C' 231.0 5 to 449.07 4 Ethanol œ A | 90 •c 2. 42593 Water A1# 25 1.71752 5 to Water in (BV) 90 B'# 55 •c 1570.59 to 436, 36 Ac |200 7.4175 (A<sup>V</sup>)|150 to 5 °C Z. 45900 4 Bc \_tc •c 1842.1 cp liq. ۰ĸ Cc 262.4 0.02659 Cryos. A\* 2 cp vap.300°K 0.30162 2 consts. B° 0.0030 400 0.38649 c, vap. te °C 160.74 = 0.751grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES: 3 Nat. Fire Prot. Assoc. 325 (1949)

TABLE I. ALKYL AND HALO BENZENES

<u></u>			······································				<b>No.</b> 5	
NAME	m-Xylene	•				STRUCTURAL		A
	1,3-Dime	thyl	benzene			<b>∠</b> \ <sup>+</sup> 3		
Mole % Pur. 99.		lecul rmuli		Molecular Weight 106.160			Нз	
	<b>+</b>	Ref.			Ref.			Ref.
F.P. *C F.P. 100%	-47,872	2	dt/dP °C/mm 25°C	2, 0725	5	f to		
B. P. *C 760 mm 100 30 10	139.103 76.82 49.23 28.14 -7.2	2 2 4 5 5	BP te 30 mm  AHm cal/g	0. 04903 0. 0358 0. 6917 26. 04	2 5 4 2	h   to g'   - 'K   h'   m   300 to	0.0207	
Pressure mm 25°C t <sub>e</sub>	8.363 1135.	5	AHv cal/g 25°C 30 mm BP	96.03 93.77 82.0	2 4 2	n   600 °K	-0.0307 0.0012 -0.0 <sub>6</sub> 46	
Density g/ml 20°C dt 25 d4 30	0.86417 0.85990 0.85563	2 2 4	t <sub>e</sub> (d, e)  ΔHv/T <sub>e</sub>	79.96 79.95 19.84	5 5	n' 1000 °K		4
a b	0.88124 -0.0 <sub>3</sub> 85	4	d 50 to e 150 °C d 15 to	98.35	4 4 4	dynes/cm. 20°C 30 40	28.63 27.54 26.44	2 2 2
Ref. Index n <sub>D</sub> 20°C 25 30		2 2 4	d <sub>c</sub> g/ml v <sub>c</sub> ml/g t <sub>c</sub> °C	0.0931 0.27 3.67 346.0	2 2 2	Parachor [P] 20°C 30	284. 2 284. 2	4 4
"C"	0,7573	4	P <sub>c</sub> mm	26600.	2	40 Sugd.	284. 2 285. 1	4 5
MR (Obs.) MR (Calc. (nD-d/2) Dielectric		2 5 2	PV/RT 25°C 30 mm BP	1.0000	5 5	Exp. L.1.%/vol. u. Dispersion	1.1 7.0 180.6	3 3 2
A 45 to	7.00908	2	t <sub>e</sub>	0.9643 0.9537 0.27	5 2	Flash Point °C Fire Point	23.2	5
B 195 °C C A* 45 to	1462, 266 215, 105 1, 37298	2 2	ΔHc kcal/m ΔHf	1045.52	2 2	M. Spec. Ultra V.	Yes Yes	1 1
B* 165 °C  K  c t <sub>k</sub> c t <sub>x</sub> °C	1367.45	5	Viscosity centistokes  7 20 °C 40	0.714 0.581	2 2 2	X-Ray Dif. Infrared  Solubility in + Acetone Carbon tet. Benzene	943. ∞ ∞	1
A'   25 to B'   50 °C C'		5 5 5	B <sup>V</sup> 20 to A <sup>V</sup> 190 °C	0.488 0.419 392.6	2 2	Ether n-Heptane Ethanol	80 80	
A'* 25 to B'* 50 °C		5	(B <sup>V</sup> )  90 to	2.51059 396.7	4	Water Water in		
Ac 195 to Bc t <sub>c</sub> C		5 5 5	(A <sup>V</sup> ) 150 °C c <sub>p</sub> liq. °K	Z. 49933	4			
Cryos. A consts. B	0.0027	2 2	c vap.300K 400 c vap.	0.28881 0.37707	2 2			
t <sub>e</sub> *C	154.72 75 T	5	L V .	1	L	grams/100 gra	ms solver	<u></u>
		2-A	PI 3-Lit. 4-	Calc. from de	t. da	ta 5-Calc. by for		-
SOURCE:		API						
PURIFICA		API						
LITERATU	RE REFERE	NC E	S: 3 Nat. Fire	Prot. Assoc.	325			

No. 6 p-Xylene STRUCTURAL FORMULA NAME 1,4-Dimethylbenzene Molecular C8H10 Mole Ref. Molecular % Pur. 99. 999 Weight 106, 160 2 Ref. Ref Ref. F, P. °C 13,263 dt/dP f to F. P. 100% °C/mm <u>•K</u> g 25°C 1.979 ·5 B, P. \*C h BP 0.04917 2 760 mm 138.351 2 0.036 ſ١ 5 to 100 75.931 2 g' \_K 30 30 mm 48.31 4 0.6922 4 10 27.2 5 h' ΔHm cal/g 2 38.53 -8.1 5 300 to -0.0210 m AHv cal/g Pressure 1\_600 °K 0.0011 25°C n 95.40 2 mm 25°C 8.816 -0.0640 30 mm ٥ 93.18 4 t<sub>e</sub> 1129. 5 BP 81,20 2 700 to m' 0.0417 Density 5 te (d, e) 79.17 g/ml 20°C n' 11000 °K 0.0010 0.86105 0.85669 5 79.15 -0.0<sub>6</sub>36 01 4 d4 AHV/T 19.68 5 30 0.85233 4 Surface tension 50 ď ī 99.61 4 0.87848 dynes/cm. 20°C 28.31 2 •c -0.0387 e 0.1330 150 4 ь 4 30 dı-27.22 26.13 2 to 15 97.78 4 40 2 Ref. Index e¹ •c 50 0.0952 4 1.49581 20°C [P]  $\mathbf{n}_{\mathbf{D}}$ Parachor d<sub>c</sub> g/ml 0.29 2 1.49325 25 2 20°C 284.4 vc ml/g 1.49037 3.48 2 4 30 30 284.5 4 345.0 2 284.6 40 4 "C" 0.7580 4 P<sub>c</sub> mm 25840. 2 Sugd 285.1 5 MR (Obs.) 36,005 2 PV/RT Exp. L. 1. %/vol. 1.1 3 35.543 MR (Calc.) 25°C 1.0000 7.0 3 (nD-d/2)1.06530 2 30 mm 1.0000 182.1 Dispersion 2 Dielectric 2,237 5 BP 0.9613 4 Flash Point °C 23.0 5 0.9504 1 45 to 6,99052 t<sub>e</sub> 5 2 Fire Point 0.25 2 B <u>190 °C</u> 1453.430 2 M Spec. Yes 1 215.307 C 2 AHc kcal/m 1045.69 2 Ultra V. Yes 1 1.36044 ΔHf -5.838 A\* 45 to 5 X-Ray Dif. ΔFf 26.310 2 B\* 165 °C 1360.12 944. Infrared 1 Viscosity Solubility in c centistokes Acetone ţ, to 20 °C 0.748 Carbon tet. •c 00 40 0.602 2 Benzene œ 60 0.502 2 25 to 7.32611 Ether œ 80 0.428 2 <u> 50 ℃</u> 1635.74 n-Heptane œ 1 20 C١ 231.4 5 в١ Ethanol 409.7 œ A | 90 2.47135 °C 4 Water A'\* 25 to 1.69080 (BV) 90 Water in B'# 50 °C 1535.29 419.5 to Ac | 190 to 7.4096 (AV) µ 50 Z. 44420 4 °C Bc tc\_C 1814.3 cp liq. ۰ĸ Сc 263.0 5 Cryos. A° consts. B° 0.02509 cp vap.300°K 2 0.28721 2 0.0028 400 0.37396 c, vap. te °C 153.79 5  $T_R = 0.75 T$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: LITERATURE REFERENCES: 3 Nat. Fire Prot. Assoc. 325 (1949)

TABLE I. ALKYL AND HALO BENZENES

F. P. **C	
Mole   % Pur. 99. 72   Ref.   Molecular   C9H12   Weight 120.186     C3H7	
Mole   Note	
Ref.	
Ref.   Ref.   Ref.   Ref.     Ref.	
F. P. °C   -99.50   2   dt/dP	-
F.P. 100%	Ref.
B. P. °C   750 mm   159, 217   2   100   94, 056   2   30   65, 28   4   43, 34   5   1   6, 7   5   1196.   5	
This is a continuation of the image is a continuation of the	
100	
10	
The color of the	
Perssure mm 25°C	4
The street of th	4
Density g/ml 20°C   0.86204   2	4
g/ml 20°C   0.86204   2   0.85780   2   0.85780   4   30   0.85356   4   4   4   5   6   6   6   6   6   6   6   6   6	4
d	4
Ref. Index   1.49202   2   1.48951   2   2   1.48683   4   4   65   1.061   2   2   2   2   2   2   2   2   2	-
Ref. Index   nD   20°C   1.49202   2   1.48951   2   25   1.48951   2   3.66   2   3.66   2   3.66   2   3.66   3.365   2   3.66   3.365   2   3.66   3.365   2   3.66   3.365   2   3.66   3.365   3.365   3.366	,
Ref. Index   n <sub>D</sub> 20°C   1.49202   2   2.491.97   2   2   3.66   2   3.66   2   3.66   3.66   2   3.66   3.66   3.36   3.23.6   3.66   3.36   3.23.6   3.	2
D   20°C   1.49202   2   1.48951   2   3.66   2   3.66   2   20°C   323.5   30   323.6   30	2
30	
MR (Obs.)	4
MR (Obs.)   40.450   2   MR (Calc.)   40.161   5   1.061   2   25°C   1.0000   5   1.0000	4
Max   Californ   40.161   2   25°C   1.0000   5   1.0000   5	5
Dielectric   2.226   5   30 mm   1.0000   5   Dispersion   166.4	
A   65 to B   205 °C   1491.297   2   2   441.297   2   2   441.297   2   2   441.297   2   2   441.297   2   2   441.297   2   2   441.297	2
A   05 to   0.9142   2   t   0.26   2	5
C	
A*I 65 to B*[190 °C]     1.35159 5 AFf     29.600 2     X-Ray Dif. Infrared     781.       K     Viscosity centistokes γ tk °C     Vocation of the centistokes γ 20 °C     0.9944 2 Carbon tet. 60 0.633 2 Carbon tet. 60 0.633 2 Carbon tet. 60 0.633 2 Carbon tet. 60 0.529 2 Carbon tet. 60	l l
Viscosity centistokes   Viscosity centistokes   γ 20 °C   0.9944   2   2   2   2   2   2   2   3   2   2	
c   C   Centistokes   Centistokes   T   Centisto	1
V	
A'   25 to   7.26890 5   60   0.633 2   Ether   60   0.529 2   P. Hartene   60   0.529	
B': 65 °C   1669 28   5   80   0.529   2   n-Hentene	
C!   222 Q   5    R'   25 to   441 7    4    Eat-a-1	
1	
Water in	
Ac 205 to 7.3599 5 (A <sup>V</sup> ) 160 °C \(\overline{\pi}\). \(\	
Cc — — 253.7 5 9 -4	
Cryos. A* 0.034 2 c vap.300*K 0.30777 2 consts. B* 0.003 2 400 0.39938 2	
t <sub>e</sub> °C 177.85 5 c <sub>v</sub> vap.	
$T_{R} = 0.75 T_{C}$ † grams/100 grams solven	
REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det. data 5-Calc, by formula	
counce	
DUDINICA MICAL	
LITERATURE REFERENCES:	

							No. 8		
NAME	Isopi	opylber	zene			STRUCTURAL FORMULA			
	Cum	ene				<b>∕</b>	H (CH3)2		
						ا ا	11 (0113/2		
Mole	Ref.	Molec		Molecular					
% Pur. 99.	. 999 <b>q</b> 2	Form		Weight 120.1	=	····		-	
		Re	<del></del>	<del></del>	Ref			Ref.	
F.P. *C	-96.03	5 2	dt/dP *C/mm		i	f to			
B. P. °C	<b></b>		25°C	3,5187	5	8  K	1		
760 mm	152.39	2 2	BP	0.05074	2	h	<del>                                     </del>		
100	88.13	2	<b>.</b>	0.0361	5	f' to g'K		1	
10	59.79 38.19		30 mm	0.7095	4	h'	1		
1	2.1	5	ΔHm cal/g	14.15	2	m   300to	-0.0657	4	
Pressure mm 25°C			ΔHv cal/g 25°C	89.77	2	n 600°K	0.0014	4	
t <sub>e</sub>	4.65 1176.	5   5	30 mm	86.14	4	° ;	-0.0 <sub>6</sub> 68	4	
Density	<del></del>	-	→ BP	74.60 72.44	2	m'   700to	0.0403		
g/ml 20°0			t (d, e)	72.40	5	n' 1000°K			
d <sub>4</sub> 25	0.85 0.85		AHV/Te	19.64	5	<u> </u>	-0.0642	1	
	0.87		d   60 to	93.58	4	Surface tension dynes/cm, 20°C	28.20	2	
ь	-0.03		170 %		4	30	27.17	2	
Ref. Index			e'   60 °C		4	40	26.09	2	
<sup>n</sup> D 20°C	1.49		d <sub>c</sub> g/ml	0.28	2	Parachor [P] 20°C	321.4	4	
30	1.48		v ml/g	3.66	2 2	30	321.6	4	
"C"	0.75	12 4	-	363. 23560.	2	40 Su zd	321.6 324.1	4 5	
MR (Obs.		2 2	P <sub>c</sub> mm	23560.	<del>  -</del> -	Exp. L.1.%/wt.	324.1	-	
MR (Calc. (nD-d/2)			25°C	1.0000	5	u.			
Dielectric	1.06		30 mm BP	1.0000 0.9653	5 4	Dispersion	165.4	2	
A 60 t			- t.	0.9535	5	Flash Point °C	39.	3	
B (200_°	1460.79	3 2	tc	0.26	2	Fire Point	<del> </del>	<del>├.</del> -	
С	207.77		ΔHc kcal/m	1194.19	2 2	M Spec. Ultra V.	Yes	1	
A*  60 to	1.34 2   1365.87		ΔFf	-9.848 29.708	2	X-Ray Dif. Infrared	782.	1	
K	_	1	Viscosity			Solubility in +	102.	H	
t <sub>1</sub>   - t <sub>2</sub>	-		centistokes 7 10 °C	1 , 054	2	Acetone	<b>60</b>	1	
			7 10 °C	1.054 0.918	2	Carbon tet. Benzene	• • • • • • • • • • • • • • • • • • •	1	
A'   25 to			40	0.724	2	Ether	00 00		
B' L60 '	C 1637.97 223.5	5	B <sup>V</sup>   10 to	0.591 467.1	4	n-Heptane	<b>60</b>	ĺ	
A1# 25 to		_	B 10 to		4	Ethanol Water	• • • • • • • • • • • • • • • • • • •		
	1541.00	5	(B <sup>V</sup> )	-1		Water in	ļ <u></u>	<b></b>	
Ac   200 to			(A <sup>V</sup> ) •c	1		H			
Bc tc_	253.6	5	c <sub>p</sub> liq. •K	<del>†</del>	t	1			
Cryos. A		<del></del>			,				
consts. B			c <sub>p</sub> vap.300°K 400	0.30345 0.39938	2	H			
t <sub>e</sub> °C	170.05	5	c <sub>v</sub> vap.						
$T_R = 0.7$	75 T <sub>C</sub>		·#	<del></del>		grams/100 gra	ms solven	<u> </u>	
REFEREN	CES: 1-D	ow 2	API 3-Lit. 4-	Calc. from de	t. da	ta 5-Calc. by for			
SOURCE:			PI						
PURIFICA	TION:		PI						
LITERATU	RE REF			e Prot. Assoc	. 32	5 (1949)			
L									

TABLE I. ALKYL AND HALO BENZENES

							No. 9	
NAME	1,2,3-Tr	imet	hylbenzene			STRUCTURAL	FORMUL	A
	Hemimel	itene	•			CH3		
						СН	3	ĺ
Mole % Pur. 99.		mul.		Molecular Weight 120,18	۱	СН	3	
W Pul. 77.	77   2   101	Ref	7 15	Height 120, 10	Ref.	<del></del>		Ref.
F. P. *C	35 375	2	dt/dP	† · · · · · · · · · · · · · · · · · · ·		, , , ,		
F.P. 100%	-25, 375	<del>                                     </del>	°C/mm			f to		
B. P. *C			25°C BP	9.734	5	ы		1 1
760 mm 100	176.084	2	t <sub>e</sub>	0.05263 0.0360	2 5	f' to		
30	109.13 79.41	4	30 mm	0.7454	4	g' <u>*K</u>		
10 1	56.68 18.6	5 5	ΔHm cal/g	16.64	2	h'		
Pressure	10.0	-	ΔHv cal/g			m   300 to	0.0291 0.0010	4
mm 25°C	1.548	5	25°C 30 mm	97.56	2	n 600 •K	-0.0627	4
t <sub>e</sub>	1234.	5	BP	91.93 79.60	2	m¹ 700 to	0,0424	4
Density g/ml 20°C	0.89438	2	t (d, e)	77.07	5	n'   1000°K	0.0010	4
at 25	0.89044	2		77.99		0'	-0.0637	4
4 30	0.88650	4	ΔHv/Te	19.72	5	Surface tension		
a b	0.91014	4	e   200 °C	0.1275	4	dynes/cm. 20°C	31.27	2
Ref. Index	-0.03787	-	d' 15 to	100.15 0.1035	4	30 40	30.25 29.20	2
n <sub>D</sub> 20°C	1.51393	2	d <sub>c</sub> g/ml	0. 1033	2	Parachor [P]		
25 30	1.51150	2	a v mi/g	3.66	2		317.8	4
"C"	0.7546	4	t° .C	395.	2	40	318.0 318.0	4
MR (Obs.)	40,451	2	P <sub>c</sub> mm	23560.	2		324, 1	5
MR (Calc.)	40.161	5	PV/RT 25°C	1,0000	5	Exp. L.1.%/wt.		1
(nD-d/2)	1.06674	2	30 mm	1.0000	5	Dispersion	175.7	2
Dielectric	2.292	5	BP te	0.9583 0.9444	4 5	Flash Point C	51.0	5
A 75 to B  230 °C	7.04082	2	i.e	0.26	2	Fire Point		↓
c	207.078	2	ΔHc kcal/m	1190.96	2	M. Spec. Ultra V.		1
A# 75 to	1.43482	5	ΔHÍ ΔFÍ	-14.013 25.679	2 2	X-Ray Dif.		1.
B*[205 °C	1495.51	"	Viscosity	1		Infrared	1310.	1
£ 5		ļ	centistokes			Solubility in Acetone		1
tk to	Į.	l	η ·c	Ì		Carbon tet.	∞ ∞	1
A1 25 to	7.37775	5	1		1	Bensene Ether	e0 e0	1
B' 1_80_°C	1792.86 224.4	5	B <sup>V</sup> to	†	<del>                                     </del>	n-Heptane	<b>60</b>	ļ
A'* 25 to	1,78176	5	B <sup>V</sup> to C	1		Ethanol Water	oc	
B' 80 °C	1691.49	5	(B <sup>V</sup> )  to	-		Water in	<b></b>	↓_
Ac 230 to	7,4536	5	(A <sup>V</sup> )  °C		L	1		
Bc tc C	1973.5 256.1	5	c <sub>p</sub> liq. *K					1
Cryos. A*	0,0164	2	c_vap300K	0, 30819	2	1	ļ	
consts, B°	0,003	2	P 400	0.39023	2	1	1	
<b>t, °</b> C	196.51	5	c vap.	<u></u>	<u> </u>	L	<u> </u>	<u> </u>
$T_{\mathbf{R}} = 0.75$						grams/100 gra		nt
	ES: 1-Dow			Calc, from de	it. di	ata 5-Calc. by for	rmula	
SOURCE:	TON.	AP		<del>- , </del>				
PURIFICAT	RE REFERE	AP NCE						
LITERATO	RE REFERE	NCL	<b>5</b> :					
								_

							No. 10	
NAME	1, 2, 4-T	imet	hylbenzene		_	STRUCTURAL I	FORMULA	
	Pseudocu	men	e			СН	3	- 1
Mole	Ref. Mo	lecul		Molecular		ال		
% Pur. 99	.70 2 Fo	rmul		Weight 120.1	86	СНз		
		Ref.			Ref		j	Ref.
F. P. °C	-43.80	2	dt/dP			f to		
F.P. 100	•	$\vdash$	*C/mm 25*C	7, 351	5	8  K		
760 mm	169.351	2	BP	0.0519	2 5	h		_
100 30	103.36	2	t <sub>e</sub> 30 mm	0.0360 0.7350	4	f' to		
10	74.056 51.64	5	ΔHm cal/g	24,54	2	h'		-
11	14.1	5	ΔHv cal/g		-	m   300 to	0.0292	4
Pressure mm 25°C	2.0980	5	25°C	95.33	2	n _600 •K	0.0010 -0.0 <sub>6</sub> 30	4 4
t <sub>e</sub>	1208.	5	30 mm BP	90.43 78.00	2	l		
Density g/ml 20°	0,87582	2	t t (d, e)	75.59 75.50	5	n'   1000 °K	0.0432 0.0010	4
at 25	0.87180	2	ΔHv/T	19.68	5	0'	-0.0637	4
4 30	0.86778	4	d   70 to	100.08	4	Surface tension	30.71	$\Box$
5	-0.03803	4		0.1304	4	dynes/cm. 20°C	29.71 28.67	2 2
Ref. Index			e' 70 °C	97.83 0.1000	4	40	27.66	2
<sup>m</sup> D 20°	1.50484 1.50237	2	d g/ml v ml/g	0.28	2	Parachor [P] 20°C	320.4	4
30	1.49988	4	tc °C	3.57 381.5	2 2	30 40	320.5 320.6	4 4
"C"	0.7580	4	P <sub>c</sub> mm	24320.	2		324.1	5
MR (Obs. MR (Calc.		2 5	PV/RT			Exp. L.1.%/wt.		
(nD-d/2)	1.06693	2	25°C 30 mm	1.0000 1.0000	5	u. Dispersion	177.9	2
Dielectric	<del></del>	5	BP	0.9540 0.9403	4 5	Flash Point °C	46.0	5
A 70 t	0 7.04383 C 1573.267	2 2	t <sub>e</sub> t <sub>c</sub>	0.255	2	Fire Point		$\dashv$
c	208.564	2	ΔHc kcal/m ΔHf	1189.92	2 2	M Spec. Ultra V.		
A* 70 to B* 200 *		5	AFÍ	-14.785 24.462	2	X-Ray Dif. Infrared	897.	1
K		-	Viscosity			Solubility in +	671.	÷
Sk   0		1	centistoken 7 20 °C	1.154	2	Acetone	œ	
t <sub>x</sub>	C		30	0.936	2	Carbon tet. Benzene	ec	
A'   25 t		5				Ether n-Heptane	<b>80</b>	
C' C	225.7	5	B <sup>V</sup>   to			Ethanol	<b>80</b>	
A'* 25 t B'* 75 *	0 1.78795 C 1668.69	5	<u> </u>			Water Water in	I	
Ac   220 t	+	5	(A <sup>V</sup> )  to	1				
Bc tc_	C 1944.8 - 256.2	5	cp liq. *K		1	1		
Cryos. A		2	c <sub>p</sub> vap.300°K	0.31018	2			
consts. B		2	400	0.39189	2			
t <sub>e</sub> °C	188.55	5	c <sub>v</sub> vap.	L	<u> </u>	l	<u> </u>	
T <sub>R</sub> = 0.		•	n			grams/100 gran		
SOURCE:	CES: 1-DOW	_		alc. from de	t. da	ta 5-Calc, by for	mula	
PURIFICA	TION:	API API						
	JRE REFERE		S:					
			-					
1								
L								

TABLE I. ALKYL AND HALO BENZENES

							No. 11
NAME	1, 3, 5-Tr	imet	hylbenzene			STRUCTURAL	FORMULA
	Mesityler	ıe .				CH <sub>3</sub>	
Mole % Pur. 9		lecul mul		Molecular Veight 120.18	36	н <sub>3</sub> с	Эн <sub>3</sub>
		Ref.			Ref.	T	Rei
F.P. *C F.P. 100	-44.720	2	dt/dP *C/mm			f to	
B. P. *C	<del></del>	_	25°C	6. 266	5	h	
760 mm	164.716	2	BP	0.05100 0.0357	2 5	f' t	
100 30	99.75 70.85	2	t <sub>e</sub> 30 mm	0.7253	4	g'	
10	48.72	5	ΔHm cal/g	19.14	2	h'	
1	11.6	5	ΔHv cal/g	/	Ť	m 300 t	
Pressure mm 25°C	2,486	5	25°C	94.40	2	n   _600_•	K 0.0011 4 -0.0 <sub>6</sub> 33 4
te	1193.	5	30 mm BP	89.95 77.60	2	<b></b>	
Density	0.0/510		t.	75.28	5	m' 700 to	
g/ml 20°	0.86518 0.86111	2 2	t <sub>e</sub> (d, e)	75.19	5	ō' ¦	-0.0637 4
dt 25	0.85704	4	ΔHv/T <sub>e</sub>	19.83	5	Surface tension	+
	0.88145	4	d 70 to	99.27 0.1316	4	dynes/cm. 20°0	28.83 2
ь	-0.03813	4	d' 15 to	96.83	4	30 40	27.79 2
Ref. Inde:		2	e'   70 °C	0.0971	4	Parachor [P]	26.75 2
<sup>n</sup> D 25	1.49684	2	d <sub>c</sub> g/ml	0.28	2		321.9 4
30	1.49429	4	vc ml/g tc °C	3.57 369.	2 2	30	322.0 4
"C"	0.7595	4	P <sub>c</sub> mm	24320.	2	40 Sug	322.0 4 d.324.1 5
MR (Obs. MR (Calc		2	PV/RT			Exp. L.1.%/w	
(nD-d/2)	1,06678	2	25°C	1.0000	5	u.	1 1
Dielectric	2.248	5	30 mm BP	1.0000 0.9531	4	Dispersion	177.5 2
A 70 to		2	t.	0.9398	5	Flash Point *C Fire Point	43.0 5
B (2)0 °	1569.622	2	t c	0,260	2	M. Spec.	Yes 1
A* 70 to	209.578	5	ΔHc kcal/m ΔHf	1189.41 -15.184	2 2	Ultra V.	Yes 1
B* 200 *		5	ΔFf	24.832	2	X-Ray Dif. Infrared	898. 1
к ——	7	l	Viscosity	Į		Solubility in	
t <sub>k</sub>   -t	<del>-</del>	l	centistokes 7 °C		Ì	Acetone	<b>∞</b>
ا يوا	1		'		1	Carbon tet. Bensene	80 80
A'   25 to B'   70 °	7.42169 C 1770.47	5				Ether	<b>∞</b>
c	227.0	5	B <sup>V</sup> to			n-Heptane Ethanol	80 80
A'+ 25 to	1.82870	5	Ă L Č			Water	~
B'* 70 °		5	(B <sup>V</sup> )  to		İ	Water in	
Acl210 to		5	(A <sup>V</sup> )  °C		<u> </u>	J	
Bc t <sub>c</sub>	C 1935.7 256.0	5 5	c <sub>p</sub> liq. *K				
Cryos, A		2	cp vap.300K	0.30037			
te °C		5	c <sub>v</sub> vap.	0.38615	2		
$T_R = 0.$	183.05	1,	I V	l	<u> </u>	+ gram = /100 =	
	CES: 1-Dow	2 - A	DI 3-144 4	Calc from de	, 4.	ata 5-Calc, by f	rams solvent
	CES: 1-DOW			Care, Irom de	4	ate 3-Care, by I	~ <u>~</u>
SOURCE:	TION	AP					
	URE REFERE	AP NCE					
1							
1							
İ							

							No. 12
NAME	o-Ethylto	luen	e			STRUCTURAL I	FORMULA
	2 - Ethyl - 1	-me	thylbenzene			Co	13
Mole	Ref. Mo	lecul		Molecular	$\Box$		H <sub>5</sub>
% Pur. 99.	76 2 Fo	rmul		Weight 120.1	86	<b>V</b> °2	5
		Ref.			Ref		Ref
F.P. °C	-80.833	2	dt/dP			f to	
F. P. 100% B. P. *C	<del> </del>	-	*C/mm 25*C	6.143	5	8  K	
760 mm	165,150	2	BP	0.05163 0.0360	2	f' to	<b></b>
100 30	99.58 70.54	2	t <sub>e</sub> 30 mm	0.7279	4	f' to	
10	48.39	5	ΔHm cal/g	21,13	2	h'	
Pressure	11.5	5	ΔHv cal/g		$\vdash$	m   300 to	-0.0058 4
mm 25°C	2. 522	5	25°C 30 mm	94.90 89.47	2	n _600 •K	0.0012 4 -0.0 <sub>6</sub> 48 4
t <sub>o</sub>	1203.	5	BP	77.30	2	m'   700 to	0,0670 4
Density g/ml 20°C	0.88069	2	t (d, e)	74.93 74.86	5	n'  1000 K	0.0010 4
at 25	0.87657	2	ΔHv/T	19.69	5	٥'	-0.0637 4
4 30	0.87245	4	d   70 to	98.55	4	Surface tension	20.20
<u> </u>	-0.03823	4		0.1286 97.88	4	dynes/cm. 20°C	30.20   2 29.13   2
Ref. Index			e' 70 °C	0.1192	4	40	28.11 2
n <sub>D</sub> 20°C	1.50456	2 2	d <sub>c</sub> g/ml	0.28	2	Parachor [P]	319.9 4
30	1.49951	4	vc ml/g tc °C	<b>3</b> . 66 380.	2 2	30	320.0 4
"C"	0.75339	4	P <sub>c</sub> mm	23560.	2	40 Sugd.	320.2 4 324.1 5
MR (Obs.) MR (Calc.		2 5	PV/RT	<u> </u>		Exp. L.1.%/wt.	
(nD-d/2)	1.06422	2	25°C 30 mm	1.0000 1.0000	5	u. Dispersion	172.1 2
Dielectric	2.265	5	BP	0.9591	4	Flash Point °C	43.0 5
A 70 to		2 2	t <sub>c</sub>	0.9459 0.26	5 2	Fire Point	
c	207.3	2	ΔHc kcal/m	1193,54	2	M Spec. Ultra V.	Yes 1
A* 70 to		5	AHI AFI	-11.110 27.973	2 2	X-Ray Dif.	l I.
B+ 1195 °C	1439.76	5	Viscosity		Ť	Infrared	550. 1
\$	4		centistokes 7 °C	İ		Solubility in + Acetone	<b></b>
t			γ Ξ	!	1	Carbon tet. Bensene	80 80
A 25 to		5		ĺ		Ether	eo
B' ∟ <u>70 °</u> C	218.3	5	B <sup>V</sup> to			n-Heptane Ethanol	80
A1# 25 to		5	A*   *C			Water Water in	
B1+ 70 °C	<del></del>	5	(B <sup>V</sup> ) to	j	ļ	***************************************	<del> </del>
Ac   215 to	1900.3	5	(A <sup>V</sup> )  •C		<u> </u>	1	
Cc	254.7	5	c <sub>p</sub> liq. •K	1			
Cryos, A° consts, B°	0.0346 0.003	2 2	c <sub>p</sub> vap.300°K 400	0.31568 0.40354			
ι <u>,</u> •C	184.11	5	c <sub>v</sub> vap.		-		
$T_R = 0.7$						+ grams/100 gram	ms solvent
	CES: 1-Dow	2-A	PI 3-Lit. 4-0	alc. from de	t. da	ta 5-Calc, by for	mula
SOURCE:		AF	PI .				
PURIFICA"		AF					
LITERATU	RE REFERE	NCE	<b>5:</b>				
l							

TABLE I. ALKYL AND HALO BENZENES

	<del></del>			<u>-</u>			No. 13	<u>,                                     </u>
NAME	m-Ethylt	oluer	ne			STRUCTURAL	FORMUL	A
	3-Ethyl-l	-me	thylbenzene			ÇH₃		- 1
ļ			T					
Mole	Ref. Mol	ecul		Molecular	.	<b>√</b> ,°	2H5	
% Pur. 99.	77   2   For	mul		Veight 120.18	Ref.	<u> </u>		Ref.
5 B 86	05.55	Ref.			Rei.	177	l	Ker.
F.P. 100%	-95.55	2	dt/dP *C/mm			f to		1
B. P. *C	<b>†</b>		25°C	5.268	5	h		
760 mm	161.305	2	BP	0.05111 0.0359	2	f' to		$\vdash$
100 30	96.36 67.58	2	t <sub>e</sub> 30 mm	0.7216	4	g'   <u>K</u>		
10	45.60	5	ΔHm cal/g	15, 14	2	h'		
1	8.9	5	ΔHv cal/g	13.11	-	m   300 to	-0.0283	4
Pressure mm 25°C	2,991	5	25°C	93.30	2	n   600•K	0.0013	4 4
t <sub>e</sub>	1190.	5	30 mm BP	88.70 76.60	2		-0.0650	1
Density			t.	74.32	5	m' 700 to	0.0814	4
g/ml 20°C	0.86452	2	t <sub>e</sub> (d, e)	74.24	5	n' 1000 K	0.0 <sub>3</sub> 97 -0.0 <sub>6</sub> 33	4
d <sub>4</sub> 30	0.86040 0.85628	2	ΔHv/T <sub>e</sub>	19.73	5	S	-	$\vdash$
•	0.88099	4	d 65 to	97.42	4	Surface tension dynes/cm. 20°C	29.07	2
ь	-0.03823	4	180 °C	0.1291 96.00	4	¥ 30	27.97	2
Ref. Index			e'   65 °C	0.1081	4	40	26.89	2
n <sub>D</sub> 20°C	1.49661 1.49408	2	d <sub>c</sub> g/ml	0.28	2	Parachor [P] 20°C	322.8	4
30	1.49145	4	vc ml/g tc °C	3.66 363.	2 2	30	322.8	4
"C"	0.7561	4	P <sub>c</sub> mm	23560.	2	40 Sugd	322.7 324.1	4 5
MR (Obs.)	40.652	2	PV/RT		<del>-</del>	Exp. L.1.%/wt.		1
MR (Calc.) (nD-d/2)	40.161 1.06434	5 2	25°C	1.0000	5	u.		Ì
Dielectric	2,240	5	30 mm BP	1.0000 0.9576	5 4	Dispersion	173.1	2
A 65 to	7,01582	2	t_	0.9448	5	Flash Point *C Fire Point	41.0	5
B 1210 °C	1529.184	2	t <sub>c</sub>	0, 26	2	M. Spec.	Yes	ı
C Apl (C A	208.509	2	ΔHc kcal/m ΔHf	1192.80 -11.670	2 2	Ultra V.		1
A* 65 to B* 190 °C	1.42613	5	ΔFf	26.977	2	X-Ray Dif. Infrared	551.	1
к			Viscosity			Solubility in +		╁
	1		centistokes り *C			Acetone	<b>∞</b>	1
tk ∙c		Ì	'	1		Carbon tet. Benzene	<b>x</b> 0	-
A'   25 to	7.29569	5				Ether		
B' 1_70_°C	1687.63 222.5	5	B <sup>v</sup> to			n-Heptane Ethanol	<b>60</b>	1
A1# 25 to	1,71135	5	B <sup>V</sup> to C			Water	<b>eo</b>	
B'* 70 °C	1589.9	5	(B <sup>V</sup> )  to			Water in	ļ	ـ
Ac 210 to	7.4264	5	(A <sup>V</sup> )  °C			J		
Bc tc C	1889.8 254.9	5	c <sub>p</sub> liq. °K			Į .		
Cryos. A*	0,029	2	cpvap300°K	0.30444	2	I		
consts. B	0.003	2	∦ <del>1</del> .00	0.39522		1	1	
t <sub>e</sub> °C	179.59	5	c <sub>v</sub> vap.					
$T_{\mathbf{R}} = 0.75$	T <sub>c</sub>					grams/100 gra	ms solve	nt
	ES: 1-Dow	2-A	PI 3-Lit. 4-	Calc. from de	t. dı	ata 5-Calc. by for	rmula	
SOURCE:		AP	I					
PURIFICAT	ION:	AP						
LITERATU	RE REFERE							
į.								
1								
L								

No. 14 p-Ethyltoluene STRUCTURAL FORMULA NAME 4-Ethyl-l-methylbenzene Ref. Molecular Molecular Mole C9H12 % Pur. 99.94 Formula Weight 120.186 Ć2H5 Ref Ref. -62,350 dt/dP f tο F.P. 100% °C/mm °K g 25°C 5.261 5 B. P. \*C h BP 0.0515 2 760 mm 161.989 2 0.0361 5 ſ١ to te 100 96.62 2 g' °K 30 67.68 4 30 mm 0.7253 4 10 45.59 5 h' ∆Hm cal/g 25, 29 2 1 8.6 5 300 to -0.0199 m ١ ΔHv cal/g Pressure 1\_600 °K 0.0012 2 n 25°C 92.70 mm 25°C 3.015 5 -0.0645 o 4 30 mm 88.30 4 t<sub>e</sub> 1195. 5 BP 76.40 2 700 to 0.0269 0.0011 4 m' 1 Density te (d, e) 74.12 5 g/ml 20°C n' 0.86118 2 5 74.06 ۰, -0.0642 4 0.85702 2  $\mathbf{d_4^t}$ AHV/T 19,63 5 30 0,85286 4 Surface tension ī 65 to 96.84 4 0.87781 28.84 dynes/cm. 20°C 1 185 •c 0.1262 4 -0.0,831 4 30 27.73 2 to 15 95.28 ١ 4 40 26.69 2 e' Ref. Index °C 65 0.1031 4 20°C 1.49500 [P]  $\mathbf{n}_{\mathbf{D}}$ Parachor d vc g/ml 0.28 2 25 1.49244 2 323.4 20°C ml/g 30 3.66 1.48981 4 323.4 c 30 4 •c tc 363. 2 40 323.5 4 "C" 0.7567 4 Pç 324.1 5 mm 23560. 2 Sugd. MR (Obs.) 40.699 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 5 40.161 25°C 1.0000 5 (nD-d/2)u. 1.06440 2 30 mm 1.0000 Dispersion 173.6 2 0.9591 0.9462 Dielectric 2,235 5 BP 4 Flash Point °C 42.0 5 te 5 65 to 6.99802 2 Fire Point tç 0,26 2 1527.113 208.921 1510 .C M Spec. Yes 1 C AHc kcal/m 1192.47 2 2 Ultra V. ΔHf -11.920 27.041 2 A\* | 65 to 1.40451 5 X-Ray Dif. ΔFf 2 B\* 190 °C 1431.45 Infrared 552. 1 ĸ Viscosity Solubility in c centistokes Acetone 20 0.819 2 œ Carbon tet. •c an 2 40 0.658 Benzene 00 60 0.5482 25 to 7.30339 Ether œ 80 0.470 B١ 1700.72 n-Heptane 00 ВŶ C١ 25 224.2 5 to 404.1 Ethanol œ ÃV | 90 •c Z. 52790 Water AI# 25 1.71657 5 Water in B'\* 70 °C 1601.72 5 (BV) to Ac | 210 to 7.4095 5 (AV) °C Bc t<sub>c</sub> 1889.3 •c cp liq. •ĸ Cc 255,7 5 0.0344 Cryos. Aº 2 c<sub>p</sub> vap.300°K 0.30303 2 consts. B° 0.003 0.39272 c, vap. t<sub>e</sub> •C 180.57 5  $T_R = 0.75 T$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API **PURIFICATION:** API LITERATURE REFERENCES:

No. 15

NAME	n - <b>B</b> t	ıtylbe	nzen	e			STRUCTURAL FORMULA				
Mole % Pur. 99.	Ref		ecul		Molecular Weight 134.2	12		4H9			
77.	<u> </u>	1	Ref.		1	Ref.	T		Ref.		
F. P. °C	-87.9	70	2	dt/dP			f to				
F.P. 100%				°C/mm			8  K				
B. P. *C				25°C BP	13.413 0.05358	5	h				
760 mm 100	183.2		2 2	t <sub>e</sub>	0.0364	5	f' to				
30	85.2		4	30 mm	0. <b>7</b> 5 <b>3</b> 5	4	g' ' <u>*K</u>				
10	62.2		5	ΔHm cal/g	19.55	2	h'	<b></b>	1		
Pressure	23.0		-	ΔHv cal/g			m   300 to	-0.0373	4		
mm 25°C	1.0	849	5	25°C 30 mm	90.47 84.14	5	n _ 600_•K	0.0013 -0.0 <sub>6</sub> 57			
t <sub>e</sub>	1245.		5	BP	71.82	5	m'   700 to	0,0738	4		
Density g/ml 20°C	0.8	601 <b>3</b>	2	t <sub>e</sub>	69.24	5	n'   1000 °K				
		5607	2	te (d, e)	69.16	Ĭ	0'	-0.0 <sub>6</sub> 37	4		
d <sub>4</sub> 25 30	0.8	5201	4	ΔHv/T <sub>e</sub>	19.45	5	Surface tension				
a		7637	4	d 85 to e 205 °C	94.84	5	dynes/cm. 20°C	29.19	5		
b	-0.0	3812	4	d'   10 to	93.10	5	30 40	28.10	5		
Ref. Index	1.4	8979	2	e' 85 °C	0.1052	5	Parachor [P]	-	+		
25	1.4	8742	2	d g/ml	0.268 3.735	5	20°C				
30	+	8502	4	vc ml/g tc *C	386.1	5	30 40				
"C"	0.7		4	P <sub>c</sub> mm	21210.	5		362.7	5		
MR (Obs.) MR (Calc.			2	PV/RT		Ħ	Exp. L.1.%/wt.				
(nD-d/2)		597 <b>2</b>	2	25°C 30 mm	1.0000	5	u.	150.3	١,		
Dielectric	2.2	20	5	BP	0.9529	5	Dispersion	159.3	2		
A 85 to		8317	2	t <sub>e</sub>	0.9367	5	Flash Point °C Fire Point	57.0	5		
B   220 °C	1577.9 201.3		2	tc	0.258	2	M. Spec.	Yes	1		
A* 85 to	+	3384	5	ΔHc kcal/m ΔHf	1341.80	2	Ultra V.				
B*  215 °C			5	ΔFf	34.62	2	X-Ray Dif. Infrared	168.	1		
K				Viscosity			Solubility in +	†	+		
t <sub>k</sub> -to	-			centistokes 7 20 °C	1.203	2	Acetone	∞			
t <sub>x</sub>	1			40	0.925	2	Carbon tet. Benzene	<b>80</b>			
A'   25 to		3005	5	60 80	0.741 0.611	2 2	Ether	∞	1		
B' 85 °C	- 1783.0 219.4		5	BV   25 40	498.1	4	n-Heptane Ethanol	80 80	1		
A'+ 25 to	+	8452	5	A 90 °C	2. 37586	4	Water	~			
B'* 85 °C	1684.3	4	5	(B <sup>V</sup> ) 100 to	458.3	4	Water in	ļ	<del> </del>		
Ac  220 to	7.3	8707	5	(A <sup>V</sup> ) 160 °C	2, 48529	4	]				
Bc tc C	1937.9 - 247.1		5	c <sub>p</sub> liq. °K							
Cryos. A*	0.0	385	2	c <sub>p</sub> vap 300°K	0. 3136	2			İ		
consts. B°	1			400	0.4079	2					
$\frac{\mathbf{t_e}  ^{\bullet} \mathbf{C}  \mathbf{F}}{\mathbf{T_R} = 0.7}$	204.4 5 T	7	5	c <sub>v</sub> vap.	<u> </u>		grams/100 gra	me sale	<u> </u>		
		Dow	2-4	PI 3-Lit 4-	Calc. from de	t. de	ata 5-Calc. by for				
SOURCE:			AF		u						
PURIFICA	TION:		AF		-						
LITERATU		ERF									
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					<del></del>		No. 16	
NAME	Isobutylb	enzei	ne			STRUCTURAL	FORMULA	١ ١
l						ÇH2¹	CH(CH3)2	
<u> </u>					$\dashv$			
Mole % Pur. 99.		lecul		Molecular				
% Pur. 99.	87   2   Fo	rmul	a 10 14   1	Weight 134.2	-	<u>`</u> _		5 (
<del></del>	<del></del>	Ref.			Ref	<del></del>		Ref.
F.P. °C F.P. 100%	-51.48	2	dt/dP *C/mm			f to	1	
B.P. °C	<del>                                     </del>	$\vdash$	25°C	7.948	5	g <u>'°K</u>		
760 mm	172.759	2	BP	0.05319 0.0373	5		<del></del>	├-
100 30	105.42 75.73	2	t <sub>e</sub>	·	4	f'   to   g'     •K_	1	
10	53,11	5	30 mm	0.7431	2	h' i	1	
1	15.3	5	ΔHm cal/g	22.28	-	m to	<u> </u>	
Pressure mm 25°C		ا ۔ ا	ΔHv cal/g 25°C	85.84	5	n ''K	]	
mm 25°C	1.930 1197.	5	30 mm	80.87	4	<u> </u>		
Density	<del></del>	<del></del>	BP te	68.08 65.82	5	m'   to		
g/ml 20°C	0.85321	2	t (d, e)	65.53	5	n'   •K	-	
dt 25	0.84907 0.84492	2	AHv/T	18.99	5	<u> </u>		
	0,86978	4	d   75 to	90.85	5	Surface tension dynes/cm. 20°C	28.26	5
ь	-0.03828	4	- 190 - C	0.1318 88.29	5	30	27.18	5
Ref. Index			e' 75 °C	0.0980	5	40	26.12	5
n <sub>D</sub> 20°C	1.48646 1.48400	2	d <sub>c</sub> g/ml	0.274	5	Parachor [P] 20°C		
30	1.48456	4	iv_mı/g	3.651 368.8	5	30		١.
"C"	0.7515	4	-	19757.	5	40 Suad	362.7	5
MR (Obs.)	45.198	2	P <sub>c</sub> mm PV/RT	19757.	-	Exp. L.1.%/wt.	302.1	-
MR (Calc.) (nD-d/2)	44.779 1.05986	5	25°C	1.0000	5	u.		
Dielectric	2,209	5	30 mm BP	1.0000 0.9397	5	Dispersion	160.5	2
A 75 to	6,93033	2	t <sub>e</sub>	0.9250	5	Flash Point *C Fire Point	49.0	5
B 210 °C		2	tc	0.26	5	<del></del>	Yes	2
C	204.171	2	ΔHc kcal/m ΔHf	-16,70	2	M Spec. Ultra V.	Yes	2
A* 75 to B* 210 °C	1.41008	5	ΔFf	-10.70	-	X-Ray Dif.	169.	١. ا
K L	1437.31	,	Viscosity			Infrared Solubility in +	107.	1
t   - to	ł		centistokes °C			Solubility in +	∞	1
t <sub>x</sub>   t <sub>0</sub> C		1	7 ℃		1	Carbon tet. Benzene	<b>80</b>	1
A'   25 to	7, 27388	5				Ether	<b>80</b>	
B; L 75 °C	1724.77 221.8	5	B <sup>v</sup> l to			n-Heptane	<b>∞</b>	1
A'* 25 to	1.73207	5	B to			Ethanol Water	<b>«</b> 0	1
B' 75 °C		5	(B <sup>V</sup> ) to			Water in	<b></b>	L
Ac   210 to	7.3324	5	(A <sup>V</sup> ) •C					
Bc tc C	1876.1 249.0	5	cp liq. *K		$\Box$			1
Cryos. A*	0,0306	2	il					
consts. B	2.0300	L	Р.					1
t <sub>e</sub> °C F	192.08	5	c <sub>v</sub> vap.					
$T_{R} = 0.79$			-			grams/100 gra		t
REFERENC	ES: 1-Dow	2 - A1	PI 3-Lit. 4-C	alc. from det	t. dat	ta 5-Calc, by for		
SOURCE:		API						
PURIFICAT		API						
	RE REFERE							
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l								
1								
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TABLE I. ALKYL AND HALO BENZENES

	- 1

NAME	86	c-I	Butyl	benz	ene			STRUCTURAL FORMULA			
	2.	Ph	enyll	butan	e			снз сн	<sup>2</sup> 2 <sup>H</sup> 5		
Mole % Pur. 9		ef. 2		ecula mula		Molecular Weight 134.2	12				
				Ref.			Ref.			Ref.	
F.P. *C F.P. 100	-75	5.47	70	2	dt/dP *C/mm			f to			
B. P. *C 760 mm 100 30	105	3.30 5.98 6.27	3	2 2 4	25°C BP t <sub>e</sub> 30 mm	8.167 0.05313 0.0368 0.7441	5 2 5 4	h   to g'   <u>°K</u>	·		
10 1		3.6 5.7		5	ΔHm cal/g	17.51	2	h'			
Pressure mm 25°C te  Density g/ml 20°	1215		77 5207	5 5	ΔHv cal/g 25°C 30 mm BP	85.90 81.00 69.11 66.89	5 4 5 5	m to		-	
dt 25	(	0.85	5797 5387	2 4	t <sub>e</sub> (d, e) <u>AHv/T</u> e	66.67 19.25	5	0'		—	
å b			7848 382	4	d 75 to e 200 °C d 10 to	90.35 0.1225 88.29	5 5 5	Surface tension dynes/cm. 20°C 30 40	29.46 28.35 27.27	5 5 5	
Ref. Inde: n <sub>D</sub> 20° 25 30		1 . 48	9020 3779 3539	2 2 4	e'   75 °C d <sub>c</sub> g/ml v <sub>c</sub> ml/g t <sub>c</sub> °C	0.0956 0.263 3.805 372.0	5 5 5	Parachor [P] 20°C 30			
"C"		0.74	192	4	tc*C	20480.	5	40 Sugd.	362.7	5	
MR (Obs. MR (Calc (nD-d/2)	) 44	5.02 4.77 1.05		2 5 2	PV/RT 25°C 30 mm	1.0000	5	Exp. L.1.%/wt. u. Dispersion	158.7	2	
Dielectric		2.22	21	5	BP	0.9503 0.9360	5	Flash Point °C	49.0	5	
A 75 to B   210 °C	1540			2 2 2	te tc ΔHc kcal/m	0.7360	5	Fire Point M. Spec.	Yes	1	
A* 75 to B* 210 °C		1.41	125	5	ΔHf ΔFf Viscosity	-15.89	2	Ultra V. X-Ray Dif. Infrared	Yes Yes	1	
c t <sub>k</sub> to t <sub>x  </sub>	;	7 70	9582	5	centistokes			Solubility in *Acetone Carbon tet. Benzene	60 60 60		
B'   75 °C '	222	2.8		5	B <sup>v</sup> to			Ether n-Heptane Ethanol Water	80 80		
B'* 75 °C	1640		3	5	(B <sup>V</sup> )  to	-		Water in	<u> </u>	-	
Bc tc	1896		,00	5	(A <sup>V</sup> )  °C c <sub>p</sub> liq. °K						
Cryos. A consts. B		0.03	303	2	c <sub>p</sub> vap. *K						
t <sub>e</sub> °C F T <sub>R</sub> = 0.	193	3. 23	36	5	c <sub>v</sub> vap.			grams/100 gra			
		1 - D	0 <b>W</b>	2-A	PI 3-Lit. 4-	Calc. from de	t. di	ata 5-Calc, by for		ent	
SOURCE:				AP							
PURIFICA	TION:			AP	-						
LITERAT		EFI	ERE								

No. 18 tert-Butylbenzene NAME STRUCTURAL FORMULA Ç(CH3)3 2-Phenyl-2-methylpropane Molecular C10H14 Ref. Mole Molecular 99.94 Weight 134.212 2 % Pur. Ref. Ref Ref F.P. \*C F.P. 100% -57,850 At/AP f \*C/mm 25\*C <u>•</u>K g 6.969 B. P. \*C h BP 0.05269 2 169.119 760 mm 2 t<sub>e</sub> f 0.0368 5 to 100 102.45 2 g' •ĸ 30 73.08 4 30 mm 0.7351 4 10 50.7 5 h! AHm cal/g 14.93 2 13.3 5 to m AHv cal/g Pressure °K 25°C 85.35 5 mm 25°C 2,214 o 30 mm 80.51 1204. 5 t<sub>e</sub> BP 68.61 5 m' to Density 5 66 22 te te (d, e) •K g/ml 20°C n' 0.86650 5 2 66.21 o' 0 86240  $d_4^t$ 25 2 AHv/T 19.25 5 30 0.85826 4 Surface tension 75 89.55 to 5 0.88291 8 dynes/cm. 20°C 30.07 <u>| 190</u> 0.1238 5 e <u>•c</u> ь -0.0,821 30 28.94 10 à٠ 87.86 to 5 40 27.84 Ref. Index e' 0.1007 75 5 1.49266 **n**D 20°C [P] Parachor d<sub>c</sub> g/ml 0.274 5 25 1.49024 2 20°C ml/g 3.651 5 30 1.48784 4 30 c •c 366.6 5 ŧ, 40 "C" 0.7488 4 Pc mm 20423. 5 Sugd. 362.7 5 MR (Obs.) 44.988 2 PV/RT Exp. L. 1. %/wt. MR (Calc.) 44.779 5 25°C 1.0000 (D-d/2) 1.05941 2 30 mm 1.0000 Dispersion 159.0 2 Dielectric 2,228 5 0.9534 0.9376 BP Flash Point °C 46.0 5 70 to 1205 °C 6,92050 t<sub>e</sub> 2 Fire Point tc 0.26 1504.572 R 2 M Spec. Yes C 203.328 ∆Hc kcal/m Ultra V 1 Yes ΔHf A\* | 70 to 1.38485 5 X-Ray Dif. AFf B+ 205 °C 1413.60 Infrared 2 Yes K Viscosity Solubility in c centistokes Acetone to Carbon tet. ·c Benzene 00 7.26343 25 to Ether œ •c 1700.12 R 5 n-Heptane 00 c' 1 220.7 Ethanol to ۸V 00 •c Water 25 1.72508 5 Water in B'# 75 (BV) •C 1602.63 5 to Ac | 205 7.3229 (AV) to 5 °C Bc tc\_ •c 1852.7 cp liq. °K Сc 248.3 Cryos. A. 0.02175 2 cp vap. •ĸ consts. B' c<sub>v</sub> vap. •c F 188,52 5 te = 0.75 Tgrams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: LITERATURE REFERENCES:

TABLE I. ALKYL AND HALO BENZENES

No.	19

NAME	o-Propyl	toluer	ne			STRUCTURAL FORMUI	LA
	l - Methyl	-2-pr	opylbenzene			С нз	
Mole % Pur.		lecula rmula		Molecular Veight 134,2	12	U c3H7	
		Ref.			Ref.		Ref.
F. P. *C	-60, 2	2	dt/dP			f to	
F.P. 1009		$\vdash$	°C/mm		1	g  K	
B. P. *C			25°C	14.407	5	h l	
760 mm	184.80	2	BP	0.0536	2		+
100	116.7	4	t <sub>e</sub>	0.0363	5	f' to K	
30 10	86.5 63.5	5	30 mm	0.7559	4		1 1
1	24.9	5	∆Hm cal/g			h'	+-
Pressure			ΔHv cal/g	1	1 1	m to	1 1
mm 25°C		5	25°C 30 mm	90.88	5	<del>-</del> -	
t <sub>e</sub>	1251.	5	BP BP	84.50 72.16	4 5	<del></del>	+
Density				69.73	5	m' to	
g/ml 20°0		2	t <sub>e</sub> (d, e)	69.46	5	",	
dt 25	0.8705 0.8666	2 4	ΔHv/T	19.52	5		+
	<del></del>	4	d 85 to	95.38	5	Surface tension	_
a b	0.8900 -0.0 <sub>3</sub> 78	4	e 1210 °C	0.1256	5	dynes/cm. 20°C 31.18 30 30.08	5
		╁╌┤	d'   20 to	93.47	5	40 29.01	5
Ref. Index		2	e'   85 °C	0.1036	5	Parachor [P]	+
<sup>n</sup> D 20°C	1.4974	2	d <sub>c</sub> g/ml	0.274	5	20°C	
30	1.4952	4	vc ml/g t °C	3.651 391.5	5	30	
"C"	0: 7524	4	t <sub>c</sub> °C P <sub>c</sub> mm	1	1	40 Sugd. 362.7	5
MR (Obs.	45,13	2	PV/RT	22164.	5		+ -
MR (Calc.	) 44.779	5	25°C	1.0000	5	Exp. L.1.%/wt.	
(nD-d/2)	1,0626	2	30 mm	1,0000	5	Dispersion 166.	2
Dielectric	2.249	5	BP	0.9516	5	Flash Point *C	+
A 85 to		2	t <sub>e</sub>	0.9378	5	Fire Point	
B 1.225 °C		2	t <sub>c</sub>		-	M. Spec.	
С	201.95	2	ΔHc kcal/m ΔHf			Ultra V.	
A* 85 to B* 215 °C		5	ΔFf		1	X-Ray Dif. Infrared	
K	- 1470.70	'	Viscosity				+
c	_	1	centistokes			Solubility in * Acetone	
t <sub>k</sub> T to		}	η ·c			Carbon tet.	
X		Ļ			ł	Benzene	1
A'   25 to B'   85 °C		5			ļ	Ether n-Heptane	
c' - 3	220.1	5	B <sub>v</sub> to			Ethanol	l
A1# 25 to		5	A' L °C		1	Water	
B'* 85 °C		5	(B <sup>V</sup> )  to			Water in	+-
Ac  225 to		5	(A <sup>V</sup> )  °C	1			
Bc tc °C	7 1957.8 248.2	5	c <sub>p</sub> liq. °K			]	1
	1 2.0.2	+	11 -	İ			-
Cryos. A consts. B		ļ	c <sub>p</sub> vap. °K				
t <sub>e</sub> °C	206, 24	5	c <sub>v</sub> vap.	<u> </u>		<u> </u>	
$T_R = 0.$	75 T <sub>C</sub>					grams/100 grams solve	ent
REFEREN	CES: 1-Dow	2-A	PI 3-Lit. 4-	Calc. from de	et. da	ata 5-Calc. by formula	
SOURCE:		AP	·I				
PURIFICA	TION:	AP	PI				
LITERATI	JRE REFERE						
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								No. 20	
NAME	m-P	ropy	ltolue	ne			STRUCTURAL I	FORMUL	١
<u> </u>	1 - Me	thyl	-3-pr	opylbenzene			<b>⊘</b> "3		
Mole	Ref.	Mo	lecul		Molecular		ر ال	H 7	
% Pur.			rmul		Weight 134.2	12	<b>V</b> 3		
			Ref.			Ref			Ref.
F.P. *C			Ш	dt/dP			f to		
F.P. 100% B.P. *C	-		$\vdash$	*C/mm 25*C	12.788	5	g <u>*K</u> _		
760 mm	181.80		2	BP	0.0530 0.0361	2 5	h f' to		$\vdash$
100 30	114.24 84.3	ŀ	2 4	t <sub>e</sub> 30 mm	0.7507	4	g' to		
10	61.4		5	ΔHm cal/g	050.	Ť	h'		
Pressure	23.1			ΔHv cal/g		$t^-$	m   to		
mm 25°C	1.14	14	5	25°C 30 mm	90.03	5 4	n   •K		
t <sub>e</sub>	1245.		5	BP	84.02 71.98	5	m'   to		$\vdash$
Density g/ml 20°C	0.86	610	2	te te (d, e)	69.56 69.39	5	n'    •K_		
dt 25 4 30	0.89	570	2	ΔHv/Te	19.61	5	0'		
a 30	0.85		4	d   85 to	94.42	5	Surface tension dynes/cm. 20°C	29.31	5
ь	-0.0		4			5	<b>y</b> 30	28,23	5
Ref. Index	. 1			e' 85 °C		5	40	27.19	5
25	1.49		2 2	d g/ml vc ml/g	0.285	5	Parachor [P] 20°C		
30	1.48		4	tc C	3.509 384.4	5	30 40		
"C"	0.75		4	P <sub>c</sub> mm	21715.	5		362.7	5
MR (Obs.) MR (Calc.			5	PV/RT 25°C	1 0000	,	Exp. L.1.%/wt.		
(nD-d/2)	1.00		2	30 mm	1.0000	5	u. Dispersion	166.	2
Dielectric	+		5	BP t <sub>e</sub>	0.9538 0.9397	5	Flash Point °C	56.0	5
B [220 °C	1591.00	)	2 2	tc	0.25	5	Fire Point		
С	202.95		2	ΔHc kcal/m ΔHf	-18,02	2	M Spec. Ultra V.	:	
A* 85 to B* 215 °C		5228 5	5 5	ΔFf	-18.02		X-Ray Dif. Infrared		
K				Viscosity			Solubility in +		+
\$				centistokes 7 °C			Acetone	•	
'x '				•			Carbon tet. Benzene	ec ec	
A'   25 to B'   85 °C		5495 3	5				Ether n-Heptane	ec ec	1
C'	221.0		5	B <sup>V</sup>   to			Ethanol	<b>®</b>	
A'* 25 to B'* 85 °C		809	5	├ <sub>─</sub> ┈ ─ ─ -	-		Water Water in		
Ac   220 to	7.42		5	(A <sup>V</sup> ) to					
Bc tc CC	1951.1		5	cp liq. •K	<del>                                     </del>	$\vdash$	1		
Cryos. A				c <sub>p</sub> vap. *K					
te °C F	202.82		5	c, vap.					
$T_{R} = 0.7$	5 T <sub>C</sub>		_ •	L	L	L_	grams/100 grai	ne #21::::	<u>.</u>
		ow	2 - AF	PI 3-Lit. 4-0	Calc. from de	t. da	ta 5-Calc. by for		
SOURCE:			AP						
PURIFICA'			AP	I					
LITERATU	RE REF	ERE	NCES	<b>:</b>					
L									

No. 21 p-Propyltoluene NAME STRUCTURAL FORMULA 1-Methyl-4-propylbenzene Molecular C10H14 Mole Molecular % Pur. Weight 134.212 Č<sub>3</sub>H<sub>7</sub> Ref. Ref. F. P. °C 63.6 dt/dP to F.P. 100% °C/mm ١ <u>•K</u> g 25°C 13,0743 5 B. P. \*C h BP 0.0535 2 760 mm 183.30 t<sub>e</sub> 0.0365 5 ſ١ to 100 2 115.12 g' <u>•к</u> 0.7562 4 30 84.9 4 30 mm 10 61.9 5 h' ∆Hm cal/g 23.3 5 m to ∆Hv cal/g Pressure ۰ĸ 25°C 89.73 5 mm 25°C 1.122 0 30 mm 83.72 1244. t<sub>e</sub> 5 BP 71.47 5 m' to te te (d, e) Density 69.02 5 n' <u>•K</u> g/ml 20°C 0.8584 5 68.83 o' 25 0.8544  $\mathbf{d_{4}^{t}}$ AHV/T 19.39 5 30 0.8504 4 Surface tension T 85 d to 94.30 5 0.8744 4 dynes/cm. 20°C 28.96 27.89 5 1210 °C 0.1245 5 ь -0.0380 4 ᆥᄀᄀᅚᅘ 30 to 5 92.23 5 40 26,85 e' | 85 Ref. Index °C 0.1002 5 20°C [P] 1.4919  $\mathbf{n}_{\mathbf{D}}$ 2 Parachor d<sub>c</sub> g/ml 0.274 5 25 1.4895 20°C vc ml/g 5 3.651 30 1.4870 4 30 386.1 5 t<sub>c</sub> 40 "C" 0.7548 4  $P_c$  mm 5 362,7 5 21162. Sugd. 45.35 MR (Obs.) 2 PV/RT Exp. L.1.%/wt. 44.779 MR (Calc.) 25°C 1.0000 5 u. 1.0627 (nD-d/2) 2 30 mm 2 Dispersion 166. 1.0000 5 Dielectric 2, 226 5 BP 0.9505 Flash Point C 5 57.0 t<sub>e</sub> 0.9358 A 85 to Fire Point 6.9926 2 0.25 5 B 220 °C 1589.00 2 M. Spec. Ultra V. ∆Hc kcal/m C 203.15 2 ΔHf -18.06 2 A\* 85 to 1.44319 5 X-Ray Dif. ΔFf B\* 215 °C 1494.44 Infrared K Viscosity Solubility in c centistokes Acetone t<sub>k</sub> [ to Carbon tet. •c 00 ٤Ì Benzene œ A' | 25 to 7,34008 Ether œ B' 85 °C 1795.52 5 n-Heptane œ B<sub>v</sub> | 221.3 5 to Ethanol 00 A'\* 25 to B'\* 85 °C °C 1.7923 Water 5 Water in (B<sup>V</sup>) 1695.51 5 to Acl 220 to 7,39734 5 (A V) °C Bc tc •c 1951 2 cp liq. ۰ĸ Сc 249.0 5 Cryos. A. c<sub>p</sub> vap. ٠ĸ consts. B c<sub>v</sub> vap. •c 204.51 5 = 0.75 Tgrams/100 grams solvent 2-API 3-Lit. 5-Calc. by formula REFERENCES: 1-Dow 4-Calc, from det, data SOURCE: API **PURIFICATION:** LITERATURE REFERENCES:

No. 22 o-Isopropyltoluene (o-Cymene) STRUCTURAL FORMULA NAME l-Methyl-2-isopropylbenzene CH ( CH 3 )2 Ref. Molecular Molecular Mole C10H14 % Pur. 99.94 Formula Weight 134.212 Ref. Ref. -71,540 dt/dP f F.P. 100% °C/mm g <u>°K</u> 25°C 10.0750 5 B. P. \*C h BP 0.0529 2 760 mm 178.15 2 t<sub>e</sub> 0.0369 5 ſ١ to 100 110.19 g' \_K 30 80.2 4 30 mm 0.7507 10 57.3 h' ∆Hm cal/g 17.81 2 19.1 5 ΔHv cal/g m to Pressure •ĸ n 25°C 87.64 5 mm 25°C 1.491 5 o 30 mm 82.12 4 t<sub>e</sub> 1226. 5 BP 69.83 5 to Density te te (d, e) 5 67.43 n' ٠ĸ g/ml 20°C 0.8766 67.26 5 ٥' 25 0.8726 2  $d_4^t$ AHv/Te 5 19.18 30 0.8684 4 Surface tension 92.18 d 80 to 5 0.8930 4 dynes/cm. 20°C 31.49 5 200 •<u>c</u> 0.1254 5 ь -0.0382 4 30 30.33 5 ď۰ \_ı <del>ö</del> to 90.15 1 40 29.19 5 Ref. Index e' 80 •c 0.1001 5 20°C 1.5006 [P]  $n_{D}$ 2 Parachor 0.274 5 d<sub>c</sub> g/ml 25 1.4982 2 20°C vc ml/g tc °C 3.651 5 30 1.4957 4 30 5 381.2 40 "C" 0.7514 4 5 P<sub>c</sub> mm 20964. Sugd. 5 362.7 MR (Obs.) 45.08 2 PV/RT Exp. L. 1. %/wt. MR (Calc.) 44.779 5 25°C 1.0000 5 (nD-d/2)u. 1.0623 30 mm 166. 1,0000 2 Dispersion Dielectric 2.252 5 BP 0.9489 5 Flash Point °C 53.0 5 te 0.9338 80 to 6.9427 2 Fire Point tç 0. 25 1549,00 L220 °C 2 M Spec. C 203.20 2 AHc kcal/m Ultra V 2 Yes ΔHſ -18, 19 A\* 80 to 1.40222 5 X-Ray Dif. ΔFf B\* 210 °C 1456.87 Infrared ĸ Viscosity Solubility in centistokes Acetone t<sub>x</sub> | to Carbon tet. •c œ Benzene œ 25 to 7.28703 Ether œ \_ 80 °C 1750, 32 5 n-Heptane 00  $\mathbf{B}^{\tilde{\mathbf{v}}}$ 221.1 5 to Ethanol 00 •c Water A1\* 25 to 1.74286 5 Water in B'# 80 °C (BV) 1651.27 to Ac | 220 to 7.3473 5 (A<sup>V</sup>) °C Bc | tc\_ 1908.2 5 cp liq. ۰ĸ Cc 249.4 Cryos. Aº 0.0296 2 c<sub>p</sub> vap. ۰ĸ consts. B° te °C c, vap. 198.7 F 5  $T_{R} = 0.75 T_{e}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

TABLE I. ALKYL AND HALO BENZENES

							No. 23
NAME _	m-Isopropy	ltolu	ene (m-Cymeno	:)		STRUCTURAL	FORMULA
L	l-Methyl-3	-isop	propylbenzene			CH3	
Mole % Pur. 99.		ecul.		Molecular Veight 134,21	12	<b>Ј</b> сн	(CH <sub>3</sub> ) <sub>2</sub>
		Ref.			Ref.		Ref.
F.P. °C F.P. 100%	-63,745	2	dt/dP °C/mm			f to	
B. P. *C 760 mm 100 30 10	175.14 107.58 77.8 55.0	2 2 4 5	25°C BP t <sub>e</sub> 30 mm	8,858 0,0533 0,0369 0,7463	5 2 5 4	h   to g'   °K	
i	17.1	5	∆Hm cal/g	24.36	2	h'	
Pressure mm 25°C t <sub>e</sub>	1.715 1219.	5 5	ΔHv cal/g 25°C 30 mm BP	86.66 81.47 69.31	5 4 5	m to	
Density g/ml 20°C dt 25 d4 30	0.8610 0.8570 0.8530	2 2 4	t <sub>e</sub> (d, e) ΔHv/T <sub>e</sub>	67.01 66.79 19.20	5 5	n'*K o' Surface tension	
a b	0.8770 -0.0 <sub>3</sub> 80	4	d 80 to e 200 °C d' 10 to	91.18 0.1249 89.12	5 5 5	dynes/cm. 20°C	29.31 5 28.23 5
Ref. Index n <sub>D</sub> 20°C 25 30	1.4930 1.4906 1.4881	2 2 4	e'   80 °C d g/ml vc ml/g tc °C	0.0983 0.274 3.651 374.9	5 5 5	Parachor [P] 20°C 30	27.18 5
"C"	0.7541	4	P <sub>c</sub> mm	20504.	5	40 Sugd	362.7 5
MR (Obs.) MR (Calc.) (nD-d/2)	45.30 44.779 1.0625	2 5 2	PV/RT 25°C 30 mm	1.0000	5	Exp. L.1.%/wt. u. Dispersion	166. 2
Dielectric	2, 229	5	BP	0.9490	5	Flash Point °C	50.0 5
A 75 to B   215 °C C	6.9428 1540.00 203.98	2 2 2	te tc ΔHc kcal/m	0.9350 0.25	5	Fire Point  M. Spec.	Yes l
A* 75 to B* 205 °C K	1.40344 1447.88	5 <b>5</b>	ΔHf ΔFf Viscosity	-18.69	2	Ultra V. X-Ray Dif. Infrared	Yes 1
t <sub>k</sub> to t <sub>x</sub> °C	7, 2871	5	centistokes 7 25 °C 40 60	1.0210 0.8454 0.6826	1 1 1	Solubility in *Acetone Carbon tet. Benzene Ether	&0 &0 &0
B' 80 °C	1740. 2 221. 7	5 5	B <sup>V</sup>   30 to A <sup>V</sup>   90 °C	0.5688 475.95	4	n-Heptane Ethanol	80 80
A <sup>1#</sup> 25 to B <sup>1#</sup> 80 °C	1.7439 1641.1	5 5	A   90 °C   (B')  to	Σ. 40742	4	Water Water in	
Acl 215 to Bc t <sub>c</sub> °C Cc	7.3474 1895.8 249.6	5 5 5	(A <sup>V</sup> )  °C c <sub>p</sub> liq. °K			-	
Cryos. A° consts. B°	0.0375	2	c <sub>p</sub> vap. °K				
$t_e ^{\bullet}C   F$ $T_R = 0.7$	195.31 5 T <sub>C</sub>	5	c <sub>v</sub> vap.			+ grams/100 gra	ms solvent
		2-A	PI 3-Lit. 4-	Calc. from de	t. da	ata 5-Calc. by for	
SOURCE:			PI				
PURIFICAT	CION:	AF				:	
LITERATU	RE REFERE	NCE	S:				
<del></del>							

No. 24 p-Isopropyltoluene (p-Cymene) STRUCTURAL FORMULA NAME l-Methyl-4-isopropylbenzene Molecular C<sub>10</sub>H<sub>14</sub> Ref. Molecular Mole CH ( CH3)2 % Pur. 99.95 Weight 134, 212 2 Ref. Ref Ref. F.P. \*C 67.935 dt/dP to °C/mm <u>•</u>K g 25°C 9.504 5 B. P. \*C 0.0537 ВP 177.10 760 mm 2 0.0371 5 f to 100 109.12 4 g' °K 30 79.16 4 30 mm 0.7499 10 56.3 5 h' AHm cal/g 17,20 2 18.2 1 5 to ∆Hv cal/g Pressure ٠ĸ 87.14 25°C 5 1.590 mm 25°C 5 ٥ 30 mm 1222. 81.71 4 5 te BP 69.31 5 m to Density g/ml 20°C te (d, e) 66.95 •ĸ n' 0.8573 5 66.72 o'  $\mathbf{d_4^t}$ 25 0.8533 ΔHv/T 19.09 5 30 0.8493 4 d | 80 Surface tension 91.74 5 to 0.8733 dynes/cm. 20°C 28.81 5 •c 0.1266 ь -0.0,80 4 30 5 27.74 26.71 1 15 to 89.65 5 e¹ 40 Ref. Index 0.1003 80 1 1.4909 n<sub>D</sub> 20°C 2 Parachor [P] d<sub>c</sub> g/ml 0.266 5 25 1.4885 2 20°C vc ml/g 3.762 30 1.4859 4 30 5 377.1 40 "C" 0.7543 4 P<sub>c</sub> mm 20165. 5 Sugd. 5 362.7 MR (Obs.) 45.33 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 44.779 25°C 1,0000 (nD-d/2)1.0623 2 30 mm 1.0000 Dispersion 166. 2 Dielectric 2.243 31 ВP 0.9473 Flash Point °C 47. 3 0.9327 5 t<sub>e</sub> A 80 to 6,9260 2 Fire Point 0.25 B 1215 °C 1538.00 2 M Spec. Yes 1 C 203.10 2 AHc kcal/m Ultra V. 2 Yes ΔHf -18.73 2 1.38851 A\* 80 to 5 X-Ray Dif. ΔFf B\* 215 °C 1446,72 2 Infrared Yes Viscosity Solubility in c centistokes Acetone to °C 25 0.9296 1 Carbon tet. œ •c 0.7777 40 ı Benzene 00 60 0.6352 A' | 25 to 7.2693 Ether 80 80 0,5335 B' \_80 °C 1737.9 n-Heptane 00 C١ 1 30 452.67 2.44552 220.9 5 В to Ethanol A | 90 A'\* 25 to B'\* 80 °C •c Water 1.7261 5 Water in (BV) 1639.2 5 to Ac | 215 to 7.3297 5 °C Bc Ltc\_ •c 1893.7 cp liq. ۰ĸ 248.9 Cryos. A. 0.02758 2 c<sub>p</sub> vap. ۰ĸ consts. B° t<sub>e</sub> •C c, vap. 5 F 197.52  $T_{\mathbf{R}} = 0.75 \, \mathbf{T}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES: 3 Nat. Fire Prot. Assoc. 325 (1949); 3' NBS 514

TABLE I. ALKYL AND HALO BENZENES

							No. 25	
NAME	1,2-Dieth	ylbe	nzene			STRUCTURAL	FORMUL	Α.
	o-Diethyl	benz	ene			C2	15	
Mole % Pur. 99.		ecul mul		Molecular Veight 134.2	12	C <sub>2</sub> i	<sup>1</sup> 5	
		Ref.			Ref.			Ref.
F.P. *C F.P. 100%	-31,240	2	dt/dP °C/mm			f to		
B. P. °C 760 mm 100 30 10	183.423 115.65 85.66 62.8	2 4 4 5	25°C BP t <sub>e</sub> 30 mm	13.873 0.05340 0.0362 0.7516	5 2 5 4	h   to g'   <u>°K</u>		
1	24.4	5	ΔHv cal/g			m to		
Pressure mm 25°C t <sub>e</sub>	1.042 1248.	5 5	25°C 30 mm BP	91.10 84.57 72.21	5 4 5	n C SK		
Density g/ml 20°C dt 25 d4 30	0.87996 0.87592 0.87186	2 2 4	t <sub>e</sub> (d, e)  ΔHv/T <sub>e</sub>	69.62 69.53 19.55	5 5 5	m' to n' K o' Surface tension		
a b	0.89612 -0.0 <sub>3</sub> 808	4	d 85 to e 210 °C d' 20 to	95.39 0.1264 93.79	5 5 5	dynes/cm. 20°C 30 40	31.98 30.82 29.69	5 5 5
Ref. Index n <sub>D</sub> 20°C 25 30	1.50346 1.50106 1.49846	2 2 4	e'   85 °C d <sub>c</sub> g/ml v <sub>c</sub> ml/g t <sub>c</sub> °C	0.1077 0.274 3.65 389.6	5 5 5	Parachor [P] 20°C 30	27.07	,
"C"	0.7524	4	P <sub>c</sub> mm	22177.	5	40 Sugd.	362.7	5
MR (Obs.) MR (Calc. (nD-d/2) Dielectric	45.122 44.779 1.06348 2.260	2 5 2	PV/RT 25°C 30 mm BP	1.0000 1.0000 0.9540	5 5	Exp. L.1.%/wt. u. Dispersion	165.9	2
A 85 to B 225 °C	6. 99016 1577, 894	2 2	t t	0.9384	5	Flash Point *C Fire Point	57.0	5
A* 85 to B* 215 °C	1.43869	5 5	ΔHc kcal/m ΔHf ΔFf	-16.94	2	M. Spec. Ultra V. X-Ray Dif. Infrared	Yes Yes	2
K c t <sub>k</sub> to c t <sub>x</sub>			Viscosity centistokes 7 °C			Solubility in Acetone Carbon tet. Benzene	&C &C &C	
A'   20 to B'   85 °C C' A'* 20 to	7.3375 1783.0 218.6	5 5 5	B <sup>v</sup>   to			Ether n-Heptane Ethanol Water	&C &C &C	
B'* 85 °C Acl 225 to	7.3918	5	(B <sup>V</sup> )  to (A <sup>V</sup> )  °C			Water in		1
Bc tc Cc	1937.3 246.4	5 5	c <sub>p</sub> liq. °K					
Cryos. A° consts. B°	0.0299	2	c <sub>p</sub> vap. *K					
t <sub>e</sub> °C	204.65	5	c <sub>v</sub> vap.	L	<u> </u>	I.,	L	<u></u>
$T_{R} = 0.7$		<u> </u>	DI 3 1 14 1	C-1- (		grams/100 gra		<u>it</u>
	ES: I-Dow			Caic, from de	τ. α	ata 5-Calc. by for	mula	
SOURCE:	rion:	AP					<del> </del>	
	RE REFERE	AF NCE				VIII		

NAME		1.3-	Dieth	vlbe	nzene			STRUCTURAL 1	No. 26	Δ
NAME		m - D:					$\dashv$	Ç2H5	OKMO D	•
L		m-D.	letiny	ibenz	zene					
Mole	. 93	Ref.		lecul		Molecular		<b>√</b> Jc <sub>2</sub>	45	
<b>% Pur.</b> 99	. 73	Z	Po	Ref	10 14	Weight 134,2	Ref			Ref.
F. P. *C	Т	02.0			46/45	T	Kei			1
F.P. 1009	+	83.97		2	dt/dP *C/mm	1	1	f to		
B. P. *C	T				25°C BP	12.828	5 2	h		
760 mm 100		81.10 13.87		2 2	te	0.0360	5	f¹ to		
30		84.09		4	30 mm	0.7465	4	g'   'K_		1
10 1		61.3		5	ΔHm cal/g	19.59	2	h'		<b> </b>
Pressure	T			$\Box$	ΔHv cal/g	00.73	_	m to		ł
mm 25°C	١.,	1.13	31	5	25°C 30 mm	90.72 84.40	5 4	0		
t <sub>e</sub> Density	112	45.		5	BP	72.23	5	m'   to		<u> </u>
g/ml 20°C	:	0.86	394	2	te te (d, e)	69.74 69.60	5	n' •K_		
dt 25 4 30		0.85	5993	2	ΔHv/T	19.69	5	0'	_,	
4 30 8	+	0.8	5590	4	d   85 to	<u> </u>	5	Surface tension	20.71	-
ь		-0.0		4	_e, 210 °C		5	dynes/cm. 20°C	29.71 28.62	5
Ref. Index					d'   10 to		5 5	40	27.56	5
<sup>n</sup> D 20°C	7	1.49	3552	2 2	d g/ml	0, 287	5	Parachor [P] 20°C		
30	1		050	4	d g/ml v ml/g t °C	3.485 383.9	5	30		
"C"	Ι	0.75	550	4	tc *C P <sub>c</sub> mm	21894.	5	40 Suad	362.7	5
MR (Obs.)		45.34		2	PV/RT	12.07.1	-	Exp. L.1.%/wt.	302.7	+-
MR (Calc. (nD-d/2)	'	1.06		5 2	25°C	1.0000	5	u.		
Dielectric	+	2, 23		5	30 mm BP	1.0000 0.9557	5	Dispersion	166.6	2
A 85 t	,†-	7.00		2	te	0.9413	5	Flash Point °C Fire Point	56.0	5
B 1220_°9		76.26	51	2	t <sub>c</sub>	0. 25	5	M Spec.	Yes	1
A*  85 to	$\overline{}$	01.00	233	5	ΔHc kcal/m ΔHf	-17.44	2	Ultra V.	Yes	1
B* 215 °C		81.17		5	ΔFf			X-Ray Dif. Infrared	Yes	2
к — — -					Viscosity centistokes			Solubility in +		
tk   to					7	:		Acetone Carbon tet.	<b>60</b>	
<b>t</b>				L.,				Benzene	<b>8</b> 0	
A'   25 to B'   85 °C		7.35 81.13	433	5		_l		Ether n-Heptane	80 80	
c,		19.0		5	B <sup>V</sup> to			Ethanol	•	
A'* 25 to	- 1 .		036	5	A <sup>V</sup> I — O			Water Water in		
B'* 85 °C	+-	7.40		5	(B <sup>V</sup> ) to	ı				
Bc tc_*		31.7	,,,	5		<del></del>	-			
Ce	<del>-</del>	46.0		5	c <sub>p</sub> liq. ∘K					
Cryos, A consts, B		0.03	369 	2	c <sub>p</sub> vap. *K					
t <sub>e</sub> °C F	_L	02.03	3	5	c <sub>v</sub> vap.	L				
$T_R = 0.7$						<del></del>		grams/100 grai	ns solver	ıt
	CES:	1-D	ow	2-AF	PI 3-Lit. 4-	Calc. from de	t. da	ta 5-Calc, by for	mula	
SOURCE:	FION				PI					
LITERATU			FD E		PI					
LILERATO	KE	REF.	EKE)	NCES	<b>)</b> :					

NAME		1,	4 - D	iethy	lbenz	ene				ST	RUCTURAL	FORMUI	
I WAME					enzer	· · · · · · · · · · · · · · · · · · ·			$\neg$	0.	RUCTURAL		
<del>                                     </del>		T	Die	1	CIIZEI		Т	<del></del>	$\dashv$		f 1		
Mole % Pur. 99	0.3		Ref. 2		lecul: mula			Molecular			C <sub>2</sub> H <sub>5</sub>		
70 Pur. 99	. 93	<u>'                                    </u>		FOI	Ref	10 14	1.	Veight 134,2	Ref.	7	02.15		Ref.
F. P. *C	$\top$		2.85	· ^	2	dt/dP			IX.	ſ			1.0.9
F.P. 1009	6		<u> </u>	, v	-	°C/mm				g	to K		
B. P. *C	T					25°C BP		13.785	5	h			
760 mm 100			3.75		2	te		0.05351 0.0363	2 5	f'	to		
30			5.80 5.71		2 4	30 mm		0.7541	4	g'	• <u>K</u>		1 1
10			2.7 4.2		5	ΔHm cal/g		18,85	2	h'	i		
Pressure	+		4.2		3	ΔHv cal/g				m	to		
mm 25°C			1.09	54	5	25°C 30 mm		90.59	5 4	n o	<u>•</u> K		
t <sub>e</sub>	1	24	7.		5	BP		84.31 71.98	5	m'			+
Density g/ml 20°0	-		0.86	104	2	te (d.s.)		69.53	5	n'	to to		
at 25	٦			5794	2	te (d, e)		69.31	5	0'	i		
4 30	$\perp$		0.8	5390	4	ΔHv/T <sub>e</sub>	•-	19.51	L	Sur	face tension		
a b				7804	4	<b>u</b> . 05	to °C	95.08 0.1257	5	dyr	es/cm. 20°C	29.44	5
Ref. Index	+	-	0.0	804	4	d' 10	to	93.18	5	•	30 40	28.36 27.30	5
n <sub>D</sub> 20°C			1.49	9483	2		•c	0.1035	5	Pa	rachor [P]		_
25			1.49	245	2	d g/ml v ml/g		0.281 3.563	5		20°C		
"C"	+		1.48		4	vc ml/g tc °C		387.3	5		30 <b>4</b> 0		
MR (Obs.	+	_	0, 79		4	P <sub>c</sub> mm		21528.	5		Sugd.	362.7	5
MR (Calc.			5, 39 4, 7		2 5	PV/RT 25°C				Ex	p. L.1.%/wt.	İ	
(nD-d/2)	┸		1.00	385	2	30 mm		1.0000	5	Die	u. persion	167.9	2
Dielectric			2.2		5	BP		0.9518	5		sh Point C	57.0	5
A 85 to B 225 °C			7.00 9.21	0054 73	2	te tc		0.9376 0.25	5	Fin	e Point		
c '			2.0		2	ΔHc kcal/:	m				Spec. ra V.	Yes Yes	1 1
A* 85 to				1865	5	ΔHf ΔFf		-17.47	2	X-	Ray Dif.		
B*[215 °C	-  1	49	4.38	3	5	Viscosity			<del>                                     </del>		rared	Yes	2
c	_[					centistoke					ubility in T	<b></b>	-
t <sub>k</sub> - to						7	,C			С	arbon tet.	œ	
A'   25 to			7. 34	1852	5				1	N	enzene ther	ec ec	İ
B' 85 °C			5.83		5	DV			┼	n-	-Heptane	œ	
C'	+	22	0.1		5	י פון	to 'C		1		thanol ater	••	
A'* 25 to		69	1.80	0161 9	5	<b>⊢</b> .⊸.– -	 to		1		ater in	ļ	
Ac  225 to	,		7.40		5	· · · ·	•c	1					
Bc tc *C	<u>-  </u> 1		9.7		5		•ĸ	1	<b>†</b>	1			
Ce	_	-4	0.0	240	2	li	ĸ			1			
Cryos. A consts. B			0.0		<u> </u>	P	ĸ						
$\frac{\mathbf{t_e} \cdot \mathbf{C}  \mathbf{F}}{\mathbf{T_R} = 0.}$	75		5.0	2	5	c <sub>v</sub> vap.		<u> </u>	J	L.	ma ma /100 ==		
			1 - 1	Dow	2 - A	PT 3-14+	4 -	Calc from de			rams/100 gra 5-Calc. by for		=nt
SOURCE:		٠.						de	u		22.0. 0, 10.		
PURIFICA	TIC	ON	:		API API								
LITERATI				ERE				<del></del>					
		-											

No. 28 STRUCTURAL FORMULA NAME 2-Ethyl-1, 3-dimethylbenzene CH3 C2H5 2-Ethyl-m-xylene Mole Molecular Molecular CHZ C10H14 Formula Weight 134, 212 Ref. Ref -16.28 dt/dP to F.P. 100% °C/mm g <u>•ĸ</u> 25°C 18.615 5 B. P. \*C h ВP 0.0561 760 mm 190.01 2 0.0360 5 ſ١ te to 100 121.55 2 g' <u>•</u>K 30 91.16 4 30 mm 0.7624 4 10 67.9 5 h' ∆Hm cal/g 28.9 5 to AHv cal/g m 1 Pressure •K 25°C 30 mm 92.78 85.95 5 n mm 25°C 0.762 5 ٥ 4 te 1267. 5 BP 73.72 5 m to Density 71.11 5 te (d, e) g/ml 20°C n' •ĸ 0.8904 5 70.99 ٥' 0.8864 2 d4 AHV/Te 19.67 5 30 0.8824 4 Surface tension 1 90 97.23 5 0.9064 4 dynes/cm. 20°C 33.52 5 1210 <u>•с</u> 0.1237 ь -0.0380 4 30 32.33 5 1 10 to 95.36 40 31.17 5 Ref. Index j 90 ·c e' 0.1033 5 20°C 1.5107 (P)  $n_D$ 2 Parachor d<sub>c</sub> g/ml 0.301 5 5 25 20°C 1.5085 2 vc ml/g tc °C 30 3.324 1.5054 4 30 401.0 5 40 "C" 0.7536 4 P<sub>c</sub> mm 23271. 5 Sugd. 362.7 5 45.13 MR (Obs.) 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 44.779 25°C 1,0000 5 (nD-d/2)u. 1.0655 2 30 mm 1.0000 Dispersion 2 170. Dielectric 2.282 5 BP 0.9536 Flash Point °C 62.0 5 0.9382 T 90 to t<sub>e</sub> 7.0440 Fire Point 2 0.247 5 tc 1632.0 1235 °C M Spec. Ultra V. Yes 2 C 202.0 2 AHc kcal/m 2 Yes ΔHf -19.84 2 A\* 90 to 1.4840 5 X-Ray Dif. ΔFf B\* 220 °C 1534.9 Infrared ĸ Viscosity Solubility in c centistokes Acetone t | to Carbon tet. °C 00 Benzene 90 25 to 7.3947 Ether œ 90 °C 1844.1 n-Heptane œ 5 B 220.5 to Ethanol œ Ã' i •c Water A'\* 25 1.8432 5 Water in B'# 90 °C (BV) 1743.5 to Ac | 235 to 7.4493 5 (A<sup>V</sup>) °C Bc tc\_ 2003.1 cp liq. ۰ĸ Сс 248.9 5 Cryos. A. •ĸ c<sub>p</sub> vap. consts. B° t<sub>e</sub> •C c, vap. 212.07 5  $T_{R} = 0.75 T$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API **PURIFICATION:** API LITERATURE REFERENCES:

TABLE I. ALKYL AND HALO BENZENES

							No. 29	
NAME	2-Ethyl-1,4	-dim	ethylbenzene		- 1	STRUCTURAL	FORMUL	A
lΓ	2-Ethyl-p-x	ylene	;			CH3		
							•	
Mole % Pur.	Ref. Mo	lecul		Molecular		CH <sub>3</sub>		
70 Pur.	For	Ref		Weight 134,21	Ref.			Ref.
F. P. *C	53.49	2	dt/dP	<del> </del>	Kei.			Ve.
F.P. 100%	-53, 68	-	*C/mm			f to		
B. P. *C			25°C	15.480	5	h		
760 mm 100	186.91	2	BP t <sub>e</sub>	0.0533 0.036 <b>3</b>	2	f' to		
30	118.46 88.10	2	30 mm	0.7615	4	g' <u>*K</u>		
10 1	64.9	5	ΔHm cal/g			h'		
Pressure	25.9	5	ΔHv cal/g			m to		
mm 25°C	0.937	5	25°C 30 mm	90.78 84.60	5	<u>-</u> -		
t <sub>e</sub>	1255.	5	BP	72.46	5	m' to		
Density g/ml 20°C	0,8772	2	t <sub>e</sub> (d, e)	70.02 69.79	5	n'  •K_		
dt 25	0.8732	2	ΔHv/T	19.51	5	o'		
	0.8692	4	d 90 to	95, 43	5	Surface tension		
a b	0.8932 -0.0 <sub>3</sub> 80	4	e   210 °C	0.1229	5	dynes/cm. 20°C	31.58 30.44	5
Ref. Index	-0.0300	<u> </u>	d' 10 to	93.23	5	40	29.33	5
n <sub>D</sub> 20°C		2	d <sub>c</sub> g/ml	0.0717	5	Parachor [P]		
25	1.5020	2	v <sub>c</sub> ml/g t <sub>c</sub> °C	3,431	5	20°C 30		
"C"	0.7560	4		394.4	5	40		_
MR (Obs.)		2	P <sub>c</sub> mm	22328.	5		362.7	5
MR (Calc.	44.779	5	PV/RT 25°C	1,0000	5	Exp. L.1.%/wt. u.		
(nD-d/2)	1.0657	2	30 mm	1.0000	5	Dispersion	171.	2
Dielectric	2, 263	5	BP t	0.9506 0.9364	5	Flash Point *C	60.0	5
A 90 to B 230 °C	7.0301 1622.0	2 2	te tc	0. 247	5	Fire Point		L
c	204.0	2	ΔHc kcal/m	İ		M. Spec. Ultra V.	Yes Yes	2
A* 90 to	1.4748	5	ΔHf ΔFf	-20.38	2	X-Ray Dif.	'''	-
B*[220 °C	1525.51	5	Viscosity	<u> </u>		Infrared		-
\$ _ <b>_</b>	-		centistokes		1	Solubility in Acetone	∞	
t <sub>k</sub> to t <sub>x</sub> °C			η ·c			Carbon tet.	∞	
A'   25 to	7, 3799	5		į		Benzene Ether	90 90	
B' -90 °C		5	PV I	<u> </u>	$\vdash$	n-Heptane	•	
A'* 25 to	222.4	5	B <sup>V</sup> to A <sup>V</sup> C			Ethanol Water	<b>∞</b>	
B'* 90 °C	1.8282 1731.3	5	(B <sup>V</sup> )  to	1		Water in		_
Ac 230 to	7.4373	5	(A <sup>V</sup> )  °C					
Bc tc °C	1992.4	5	c <sub>p</sub> liq. °K			1		1
Cryos. A°	230.7	<del>                                     </del>	c <sub>p</sub> vap. *K					
consts. B		L	11					
te°C F	208, 58	5	c <sub>v</sub> vap.	1	L			
$T_R = 0.7$	5 T <sub>C</sub>					grams/100 gra	ms solver	ıt
REFEREN	CES: 1-Dow	2-A	PI 3-Lit. 4-	Calc. from de	t. da	ata 5-Calc. by for	mula	
SOURCE:		API						
PURIFICA	TION:	API						
LITERATU	RE REFERE	NCE	S:					
1								
L								

NAME	3 - Ethyl-	1,2-0	limethylbenzen	e	$\Box$	STRUCTURAL E	No. 30 FORMUL	Α
	3-Ethyl-	o-xy	lene			СH <sub>3</sub>		
Mole % Pur.		lecul		Molecular Weight 134, 2	12	CzH		
<del></del>	<del> </del>	Ref.			Ref			Ref.
F.P. *C	-49.5	2	dt/dP			f i to		
F.P. 100%			*C/mm 25*C		1. '	gK_		1
B. P. °C 760 mm	193.91	2	BP	22.337 0.0554	2	h		<u> </u>
100	125.02	2	t <sub>e</sub>	0.0360	5	f' to		
<b>30</b> 10	94.42 71.0	4 5	30 mm	0.7676	4	g'   '*K_		1
1	31.7	5	∆Hm cal/g			h¹		├
Pressure	<u>†                                     </u>		ΔHv cal/g	1		m to		
mm 25°C	0.625	5	25°C 30 mm	94.24 86.90	5 4	0   =-		1
t <sub>e</sub>	1276.	5	BP	74.42	5	m'   to		<del> </del>
Density g/ml 20°C	0.8921	2	t <sub>e</sub> t <sub>e</sub> (d, e) AHv/T	71.74	5 5	n' ''K_		1
t 25	0.8881	2	ΔHv/T	19.66	5	0'		1
4 30	0.8841	4	d   95 to		5	Surface tension		1
a b	0.9081	4	_e   220 _ °C		5	dynes/cm. 20°C	33.78	5
Ref. Index	-0.0380	4	d'   10 to	96.88	5	30 40	32.58 31.42	5
n <sub>D</sub> 20°C		2	e¹   95 °C	1	5	Parachor [P]		t
- 25	1.5095	2	d g/ml v ml/g t °C	0.301 3.326	5	20°C		
30	1.5068	4	tc °C	406.9	5	30 40		
	0.7535	4	P <sub>c</sub> mm	23460.	5		362.7	5
MR (Obs.) MR (Calc.		5	PV/RT	· ·	$\Box$	Exp. L.1.%/wt.		1
(nD-d/2)	1.0656	2	25°C 30 mm	1.0000	5 5	u. Dispersion	170.	2
Dielectric	2.285	5	BP	0.9526	5	Flash Point °C	65.0	5
A 95 to	7.0488	2	t <sub>e</sub>	0.9370	5	Fire Point	05.0	1
B 1235_*C	201.0	2 2	tc	0. 247	3	M Spec.	Yes	1
A*  95 to	+	+-	ΔHc kcal/m ΔHf	-19.84	2	Ultra V.	Yes	2
B* 225 °C		5	ΔFf			X-Ray Dif. Infrared		
K	-	1	Viscosity		1 1	Solubility in +		1
ξ <sub>k</sub>	-	1	centistokes 7 °C	. 1		Acetone	oc	
tx c			1			Carbon tet. Benzene	ec ec	
A'   25 to		5	1			Ether	<b>®</b>	
B' 1_95 °C	219.6	5	B <sup>V</sup>   to	<b>†</b>	+	n-Heptane Ethanol	<b>60</b>	İ
A1# 25 to	+	5	A <sup>V</sup> C			Water	oc	
B'* 95 °C		5	(B <sup>V</sup> ), to	-		Water in		
Ac   235 to	7,4535	5	(A <sup>V</sup> ) •c	į.	1		1	
Bc tc_C	2019.5	5	cp liq. °K		1			İ
Cc — -	248, 1	5	11	1			1	l
Cryos. A° consts. B°			c <sub>p</sub> vap. *K					
te °C F	216.47	5	c <sub>v</sub> vap.					
$T_R = 0.7$						fgrams/100 gran		nt
REFEREN	CES: 1-Dow	2-A1	PI 3-Lit. 4-	Calc. from de	t. da	ta 5-Calc. by for	mula	
SOURCE:		AF	PI					
PURIFICA?	rion:	AF						
LITERATU	RE REFERE							

TABLE I. ALKYL AND HALO BENZENES

	4-Ethyl-1 2	-din	nethylbenzene				TOUCTURA!		
NAME	4-Ethyl-0-x				$\dashv$	No. 31   STRUCTURAL FORMULA   C2H5   Ref.   C2H5   Ref.   C2H5   Ref.   C2H5			
L_	<del></del> ,	.,							
Mole		lecul		Molecular	}		V.		
% Pur.	Por	rmula		Weight 134,21		,		<u></u>	T 6
	1	Ref.		+	Ref.	L	, , , , , , , , , , , , , , , , , , ,		Rei.
F.P. °C F.P. 100%	-67.0	2	dt/dP °C/mm						
B. P. *C	<del>                                     </del>	$\vdash$	25°C	18.567	5		! <del>*</del>		
760 mm	189.75	2	<b>B</b> P	0.0563	2		1		+-
100	121.4	2	t <sub>e</sub>	0.0359	5				
30 10	91. <b>0</b> 6 67.8	4 5	30 mm	0.7614	4	1			
1	28.9	5	ΔHm cal/g		+		to		+-
Pressure	[ <u></u> ,	[ ]	ΔHv cal/g 25°C	92.84	5	n			
mm 25°C	0.764	5	30 mm	86.01	4	٥_	1		
Density	1201.	<del>                                     </del>	BP	73.77 71.22	5				
g/m1 20°C	0.8745	2	te te (d, e)	71.03	5		<u> </u> •K		
dt 25 4 30	0.8706	2	AHv/Te	19.71	5		1		
	0.8667	4	d 90 to		5				1_
a b	0.8901 -0.0 <sub>3</sub> 78	4 4	e_ 220_°C	0,1241	5	dyn	nes/cm. 20°C 30	31.19 30.09	5
Ref. Index	-0.03.0	+	d' 10 to e' 90 °C	_	5	•	40	29.02	5
n <sub>D</sub> 20°C	1.5031	2	F		5	Par	rachor [P]		1
25 30	1.5009	2	d g/ml v ml/g	0.297 3.368	5		20°C		1
"C"	1.4983	4	v <sub>c</sub> ml/g t <sub>c</sub> *C	398.6	5	l	30 40		
	0.7567	4	P <sub>c</sub> mm	22888.	5			362.7	5
MR (Obs.) MR (Calc.)	45.38 44.779	2 5	PV/RT			Exp	p. L.1.%/wt.		
(nD-d/2)	1.0658	2	25°C 30 mm	1.0000	5	Die	u. spersion	171.	2
Dielectric	2.259	5	RP	0.9536	5	<b> </b>	sh Point C	71.0	5
A 90 to	7.0493	2	t <sub>e</sub>	0.9390	5		e Point	/1.0	3
B 1230 °C_	1633.0 202.0	2 2	tc ΔHc kcal/m	0.247	5	М.	Spec.	Yes	2
A*  90 to	1,48840	+	ΔHf	-20, 38	2		ra V.	Yes	2
B* 220 °C	1535.60	5	ΔFf				Ray Dif. rared		
ĸ		'	Viscosity		'	l	ubility in +	<del> </del>	+-
t <sub>k</sub>   -to		'	rentistokes °C	:		A	cetone	<b>∞</b>	
t <sup>k</sup>			"				arbon tet. enzene	ec ec	
A'  25 to	7.40035		1			E	ther	- w	-
B' 1_90_°C	1845.24 220.5	5	B <sub>v</sub> to		+-		-Heptane thanol	<b>∞</b>	
A¹* 25 to	+	+	∦ Å <sup>v</sup> ∣ °C				ater	<b>oo</b>	
B'* 90 °C	1.84891 1744.65	5	(B <sup>V</sup> )  to	, 🚽		w	ater in		$\perp$
Ac 230 to	7.4540	5	(A <sup>V</sup> )  •c	1					
Bc tc C	2002.0	5	c <sub>p</sub> liq. °K		$\top$	1			
Cc	248.4	+-	-11						
Cryos. A° consts. B°			c <sub>p</sub> vap. *K	*					
te °C F	211.78	5	c <sub>v</sub> vap.						
$T_{R} = 0.75$		—	и			+ 2	rams/100 gra	ms solve	nt
		2-A	PI 3-Lit. 4	-Calc, from d	et. di				
SOURCE:		AF							
PURIFICAT	'ION:								
	RE REFERE	AF							
MIENAIU.	AE REFERS	NUE	5:						

No. 32 4-Ethyl-1, 3-dimethylbenzene STRUCTURAL FORMULA NAME ÇH3 4-Ethyl-m-xylene Molecular C10H14 Molecular Weight 134.212 Mole Ref. % Pur. 2<u>H5</u> Ref. Ref. Ref. -62.90 2 F.P. C F.P. 100% dt/dP to °C/mm <u>•</u>K g 25°C 17,066 B. P. °C h 0.0555 BP 2 760 mm 188.41 2 0.0361 ſ١ to 100 120.04 2 g¹ •ĸ 30 89.69 4 30 mm 0.7613 4 66.5 27.5 10 5 h' ∆Hm cal/g 5 to m AHv cal/g Pressure •K n 25°C 91.88 mm 25°C 0.840 30 mm o 85.37 1262. t<sub>e</sub> 5 BP 73.21 5 Density m to te (d, e) 70.70 5 •K g/ml 20°C n' 0.8763 70.52 5 0.8723 2  $\mathbf{d_{4}^{t}}$ AHV/Te 19.63 5 30 0.8683 4 Surface tension ď 1 90 96.42 5 0.8923 to dynes/cm. 20°C 31,45 210 •c 0.1232 5 Ъ -0.0380 4 30, 31 à٠ 30 īō 94.40 to 1 29.21 40 5 Ref. Index e' 90 0.1007 20°C 1.5038 2 [P] n<sub>D</sub> Parachor 0.294 d<sub>c</sub> g/ml 5 25 1.5016 20°C ml/g 3.398 5 30 1.4990 4 c 30  $t_c$ •c 5 396.4 40 "C" 0.7562 4 P<sub>c</sub> mm 22611. 5 Sugd. 362.7 5 MR (Obs.) MR (Calc.) 45.34 2 PV/RT Exp. L.1.%/wt. 44.779 5 25°C 1.0000 5 (nD-d/2)1.0656 2 30 mm 1.0000 Dispersion 171. 2 Dielectric 2,261 5 BP 0.9526 5 Flash Point °C 61.0 5 0.9380 **190 to** 7,0427 te 5 2 Fire Point t<sub>c</sub> 0.247 5 1230 °C 1629.0 M Spec. Yes 2 203.0 2 AHc kcal/m Ultra V. Yes -20.38 ΔHf 2 A\* 90 to 1.4840 X-Ray Dif. ΔFſ B+ 220 °C 1531.9 Infrared ĸ Viscosity Solubility in centistokes t<sub>x</sub> Acetone to Carbon tet. °C Bensene œ AT 25 to 7,3933 Ether œ 1840.7 B١ \_90 °C n-Heptane an B<sup>V</sup> | C' 221.4 Ethanol to •C an A'\* 1.8416 Water 25 5 Water in (BV) B1# 90 °C 1739.7 to Ac | 230 to (AV) 7.4486 5 °C 1998.6 Bc \_tc\_ •c cp liq. °K Cc 249.5 Cryos. A. c<sub>p</sub> vap. •ĸ consts. B° c, vap. te .C 210.27 F 5  $T_R = 0.75 T_C$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det. data 5-Calc, by formula API SOURCE: PURIFICATION: API LITERATURE REFERENCES:

[ ]		5.Eth	v1-1	3 - di	methylbenzene		$\neg$	CTP II CTIID A I	No. 33		
NAME			-				$\dashv$	STRUCTURAL CH3	FORMULA		
ļl		5-Eth									
Mole % Pur. 99.	89	Ref.	Moi For	lecul muls		Molecular Weight 134.21	12	н <sub>5</sub> С2			
				Ref.			Ref.		Rei		
F. P. °C		84.32	5	2	dt/dP			f to			
F. P. 1009	•				*C/mm 25*C	14 007	۱.	g '° <u>K</u>			
B. P. *C 760 mm	Ι,	83,75		2	BP	14.007	5 2	h			
100		16.06		2	t <sub>e</sub>	0.0360	5	f' to	i		
30 10		86. 01 63. 0		4 5	30 mm	0.7539	4	g' <u>K</u>			
10		24.4		5	ΔHm cal/g	15.94	2	h'			
Pressure					ΔHv cal/g 25°C	00.40	١.	m to			
mm 25°C	1,,	1.03 251.	89	5 5	30 mm	90.48 84.47	5	•			
t <sub>e</sub>	+			⊦∸⊢	BP	72.64	5	m¹ to			
Density g/ml 20°0	:	0.86	48	2	te te (d, e)	70.19 70.06	5	n'   _ °K			
at 25		0.86		2	ΔHv/T	19.70	5	0'			
	+	0.85		4	d 85 to	94, 88	5	Surface tension			
a b		0.88		4 4	e 205 °C	0.1211	5	dynes/cm. 20°C	29.83 5 28.74 5		
Ref. Index				$\vdash$	d' 10 to e' 85 °C	92.95 0.0985	5	40	27.68 5		
n <sub>D</sub> 20°0	-	1.49		2	d <sub>c</sub> g/ml	0, 293	5	Parachor [P]			
25 30		1.49		2 4	I v_mi/g	3.416	5	20°C 30			
"C"	+	0.75		4	ا تو عن	387.8	5	40	1		
MR (Obs.	+	45.50		2	P <sub>c</sub> mm	22208.	5		362.7 5		
MR (Calc.		44.77	9	5	PV/RT 25°C	1,0000	5	Exp. L.1.%/wt.			
(nD-d/2)	$\perp$	1.06		2	30 mm	1.0000	5	Dispersion	172. 2		
Dielectric		2,24		5	BP	0.9548 0.9405	5	Flash Point C	57.0 5		
A 85 to B 225 °C		7.04 515.0	59	2 2	t <sub>c</sub>	0. 247	5	Fire Point			
c '		04.0		2	ΔHc kcal/m	† · · · · · · · · · · · · · · · · · · ·	†	M. Spec. Ultra V.	Yes 2 Yes 2		
A* 85 to		1.48	78	5	ΔHf ΔFf	-20.86	2	X-Ray Dif.	les 2		
B* 215 °C	- 115	517.7		5	Viscosity		<u> </u>	Infrared	<b></b>		
° – –	_				centistokes			Solubility in Acetone	<b>x</b>		
t <sub>k</sub> to					η ·c			Carbon tet.	· ·		
A'   25 to		7, 39	67	5				Benzene Ether	<b>80</b>		
B' 85 °C	18	324.9	٠.	5		<b>}</b>	┼	n-Heptane			
C'	$\overline{}$	22.3		5	B <sup>V</sup> to A <sup>V</sup> C			Ethanol Water	œ		
A'* 25 to B'* 85 °C		1.84 23.9	68	5	(B <sup>V</sup> )  to	-		Water in	1 1.		
Ac  225 to	_	7, 45	18	5	(A <sup>V</sup> )  °C						
Bc tc *C	19	79.9		5		†	$\vdash$	1			
Cc -	-+-	49.7		5	Р -	1					
Cryos, A consts, B	1	0.03		2	c <sub>p</sub> vap. *K						
te °C F		205.02		5	c <sub>v</sub> vap.	L		L	L		
$T_R = 0.7$								grams/100 gra			
	CES	: 1-1	ow			Calc. from de	et. de	ata 5-Calc, by for	mula		
SOURCE:				API							
PURIFICA				API							
LITERATI	JKE	KEF	ERE	NCE	S:						

No. 34 1, 2, 3, 4-Tetramethylbenzene STRUCTURAL FORMULA NAME Prehnitene СНЗ СНЗ Mole Ref. Molecular Molecular  $C_{10}H_{14}$ % Pur. Formula Weight 134, 212 Ref Ref. 6.25 dt/dP to F.P. 100% °C/mm •ĸ g 25°C 36.540 B. P. °C h BP 0.0553 2 760 mm 205.04 2 t<sub>e</sub> 0.0362 5 ſ١ to 100 134.64 2 g' °K 30 103.36 4 30 mm 0.7850 10 79.4 5 h' AHm cal/g 19.97 2 39.2 5 to m ΔHv cal/g Pressure •K 25°C n 97.71 5 mm 25°C 0.369 30 mm 0 89.15 4 t<sub>e</sub> 1302. 5 BP 76.09 5 Density m to te (d, e) 73.20 5 g/ml 20°C n' •ĸ 0.9052 73.01 5 ٥' 25 0.9015 2  $\mathbf{d_4^t}$ AHv/T 19.56 5 30 0.8978 4 Surface tension d 1100 102.43 5 0.9200 4 dynes/cm. 20°C 35.81 <u> 1 230</u> •c 0.1285 5 ь -0.0374 4 a٠-7 Tŏ 30 34.65 100.44 to 0.1092 40 33.52 Ref. Index •c e' 100 20°C 1.5203 [P]  $\mathbf{n}_{\mathbf{D}}$ Parachor d<sub>c</sub> g/ml 0.308 5 25 20°C 1.5181 vc ml/g 3.246 5 30 1.5155 4 30 426.9 40 "C" 0.7540 4 Pç Sugd. mm 24553. 5 362.7 5 MR (Obs.) 45.10 2 PV/RT Exp. L. 1. %/wt. MR (Calc.) 44.779 25°C 5 1,0000 (nD-d/2)u. 1.0677 2 30 mm 1,0000 Dispersion 5 174. 2 Dielectric 2,311 5 BP 0.9489 5 Flash Point °C 73.0 5 A 100 to te 0.9320 7.0584 2 Fire Point 0,245 1250 °C 1689.10 M Spec. AHc kcal/m C 199.28 2 Ultra V ΔHſ -23,04 2 A\* | 100 to 1.4934 5 X-Ray Dif. ΔFf 1591.6 B\* 240 °C Infrared 2 Yes ĸ Viscosity Solubility in centistokes Acetone to t | Carbon tet. •c œ Benzene œ A' 25 to 7.4100 Ether œ B' 1100 1908.6 <u>•c</u> n-Heptane œ B 5 218,3 to Ethanol  $\hat{\mathbf{A}^{\mathbf{V}}}$ œ •c A1# 25 Water 1.8524 5 Water in (BV) B'\*100 1807.4 5 to Ac |250 to 7.4638 5 (AV) °C Bc Ltc\_ 2074.7 •c cp liq. ۰ĸ Cc 248.1 Cryos. A\* 0.0190 vap. •K 2 consts. B° te °C c, vap. 229.02 5 T<sub>R</sub> = 0.75 T grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

No. 35 1, 2, 3, 5-Tetramethylbenzene STRUCTURAL FORMULA NAME Isodurene СНЗ Mole Ref. Molecular Molecular C10H14 Weight 134.212 % Pur. 99.92 2 Formula Ref. Ref. Ref. F.P. C <u>-23, 685</u> dt/dP f \*C/mm g ١ °K 25°C 27,330 5 B. P. °C h ВP 0.055 2 760 mm 198.00 2 0.036 5 ſ١ to 100 128.79 2 g' <u>•к</u> 30 98,00 4 30 mm 0.7728 4 10 74.4 h' AHm cal/g 34.8 5 1 .to •K m AHv cal/g Pressure n 25°C 95.71 5 mm 25°C 0.5033 5 0 30 mm 88.00 4 1289. 5 t<sub>e</sub> ΒP 5 75.57 m' to Density g/ml 20°C t<sub>e</sub> (d, e) 5 72.79 n' •K 0.8903 2 72.70 5 ٥' 25 0.8865  $\mathbf{d_{4}^{t}}$ AHv/T 5 19.76 30 0.8827 4 Surface tension d 100 to 100.17 5 0.9055 dynes/cm. 20°C 33.51 | 220 | 20 | 20 0.1243 <u>•c</u> ь -0.0<sub>3</sub>76 30 32.38 5 to 98.35 5 31.28 5 40 e' | 100 Ref. Index 0.1057 5 <sup>n</sup>D 20°C 1.5130 Parachor [P] d g/ml vc ml/g tc °C 0.308 5 25 20°C 1.5107 3.25 5 30 1.5074 4 30 413.6 5 40 "C" 0.7568 4 P<sub>c</sub> mm 24119. 5 Sugd. 362.7 5 MR (Obs.) 45.31 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 44.779 25°C 1.0000 (nD-d/2) 1.0678 2 30 mm 1,0000 Dispersion 174. 2 Dielectric BP 2.289 5 0.9538 5 Flash Point C 68.0 5 t<sub>e</sub> 0.9374 A 95 to 5 7.0769 2 Fire Point 0.247 5 1674.00 B (240 °C M. Spec. C 200.94 2 AHc kcal/m Ultra V. ΔHf -23.54 2 95 to 1.50994 X-Ray Dif. ΔFf B\* •c 1575.28 Infrared ĸ Viscosity Solubility in centistoke Acetone to C Carbon tet. 4 Benzene œ A' 25 to 7.42969 Ether 5 œ B١ 95\_°C 1891.57 n-Heptane 00 B<sup>V</sup> A 219.8 5 Ethanol to 00 •c Water A1# 25 to 1.87408 (B<sup>V</sup>)[ Water in B1# 95 •c 1790,24 to Ac 240 to 7,48236  $(A^{\vee})$ °C Bc t<sub>c</sub> •c 2052, 4 5 5 c<sub>p</sub> liq. •ĸ Cc 248.4 Cryos. Aº 0.023 2 cp vap. •ĸ consts. B. c<sub>v</sub> vap. te ℃ 221,09 5  $T_{R} = 0.75 T_{c}$ grams/100 grams solvent 5-Calc. by formula REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det. data SOURCE: API **PURIFICATION:** API LITERATURE REFERENCES:

NAME	1,2,4,	5-Tetra		STRUCTURAL F	ORMULA			
	Duren	e				CH3	нз	
Mole % Pur. 9	Ref. 2	Molecula Formula	C <sub>10</sub> H <sub>14</sub>	Molecular Weight 134,2	212	H <sub>3</sub> C CH <sub>3</sub>		
		Ref			Ref			Ref.
F, P. *C	79.24		dt/dP	1	$\Box$	f   to		
F. P. 100	6		°C/mm	1		g   K		
B. P. °C	1		25°C BP	25.964	5	h		١.
760 mm	196.80 127.77	2	t <sub>e</sub>	0.054 0.0358	2 5	f' to		
30	97.1	2 4	30 mm	0.7709	4	g'   'K_		
10	73.5	5	ΔHm cal/g	37.40	2	h¹		
1	34.0	5	ΔHv cal/g		$t^{-}t$	m to		
Pressure mm 25°C	0,53	2 5	25°C	95.35	5	n   •K-		1
t <sub>e</sub>	1287.	5	30 mm BP	87.78 75.34	4 5			
Density			1 •	72.69	5	m' to to		
g/ml 20°0	0.88 0.88		t (d, e)	72.48	5	;;		
d <sub>4</sub> 25	0.87		ΔHv/T <sub>e</sub>	19.79	5	Surface territor		$\vdash$
	0.90		d   95 to e   220 °C		5	Surface tension dynes/cm. 20°C	33.09	5
Ь	-0.03	76 4	_d' 10 _ tō	97.97	5	30 40	31.97 30.88	5
Ref. Index		16 2	e'   95 °C	<del></del>	5	Parachor [P]	30.88	٦
D 25	1.50		d <sub>c</sub> g/ml	0.306	5	20°C		
30	1.50	73 4	vc ml/g tc °C	3.268 411.4	5 5	30		
"C"	0.75	79 4	P <sub>c</sub> mm	24037.	5	40 Sugd.	362.7	5
MR (Obs.)		2	PV/RT	+	$\vdash$	Exp. L.1.%/wt.		
(nD-d/2)	1,06		25°C	1.0000	5	u.		
Dielectric			30 mm BP	1.0000	5		174.	2
A 95 t			t.	0.9383	5	Flash Point *C Fire Point	67.0	5
B (240 °	2 1671.0	2	t <sub>c</sub>	0.247	5	M Spec.	Yes	2
C	201.23	2	AHc kcal/m	-23.58	2	Ultra V.		l
A* 95 to B* 230 °	1.511 C 1572.1	18 5	ΔFf	1 -23.30	ا ' ا	X-Ray Dif. Infrared	Yes	1
K	-		Viscosity			Solubility in +	Yes	2
i	-		centistokes 7 °C			Acetone	<b>∞</b> 0	l
			\ '	}		Carbon tet. Benzene	<b>∞</b>	l
A1 25 t		9 5		1		Ether	80 80	l
B' (100 °	220.0	5	B <sup>V</sup> l to	<del>                                     </del>	-	n-Heptane	••	İ
A'+ 25 t	<del></del>		B to			Ethanol Water	••	
B'+100		'   3	(B <sup>V</sup> ), to	-		Water in		L.
Ac  240 t	7.484		(A <sup>V</sup> ) •C	i				
Bc tc_	2048.2	5	c <sub>p</sub> liq. •K	<del></del>				
Cryos. A	0.020		c <sub>p</sub> vap. *K	1				
consts. B	·		c, vap.					1
t <sub>e</sub> °C F	219.73	5	, ,	L	<u> </u>	L <b>.</b> l		<u> </u>
T <sub>R</sub> = 0.			cooled liquid			grams/100 gram		t
	CES: 1-Do			Calc. from de	t. das	ta 5-Calc. by forn	nula	
SOURCE: PURIFICA	TION	AP						
	RE REFE	RENCES		·····				
	NUL E		•					

NAME	n-Pentylber	nzene				STRUCTURAL	FORMUL	
	n-Amylbenz	ene				£5 <sup>†</sup>		
Mole % Pur.		lecul muls		Molecular Veight 148.23	38			
		Ref.			Ref.	!		Ref.
F. P. *C	-75.	2	dt/dP			f to		
F.P. 100%			°C/mm		, ,	g  •K	_	
B. P. *C			25°C	40.259	5	h l	ł	
760 mm	205.4	2	BP t <sub>e</sub>	0.055 0.0359	2 5	f'   to		$\sqcap$
100 30	135.42 104.34	4	30 mm	0.7796	4	g' <u>K</u>	.l	1 1
10	80.6	5		0.7770		h'	1	1 1
1	40.7	5	ΔHm cal/g		$\vdash$	m   300 to	-0.0312	4
Pressure			ΔHv cal/g 25°C	90.34	5	n    _6 <u>0</u> 0_•K	0.0013	4
mm 25°C	0.328	5	30 mm	81.70	5	•	-0.0656	4
Density	1307.	-	BP	69.52	5	m1 700 to	0,0804	4
g/ml 20°C	0, 8585	2	te te (d, e)	66.77 66.63	5	יין ויים <u>יי</u> ג	0.0010	4
at 25	0.8546	2	AHv/Te	19.69	5	0'	-0.0637	4
4 30	0.8507	4	<del></del>			Surface tension		
a .	0.8741	4	d 105 to e 230 °C	94.28 0.1205	5	dynes/cm. 20°C	29.41	5
ь	-0.0378	4	d' 20 to	93.06	5	30 40	28.35	5
Ref. Index	1.4878	2	e'   105 °C	0.1088	5	Parachor [P]	21.33	ᡰ᠊ᠲ
<sup>n</sup> D 20°C	1.4855	2	d <sub>c</sub> g/ml	0.284	5	20°C		1 1
30	1.4830	4	vc ml/g tc °C	3.518 405.9	5	30		1 1
"C"	0.7487	4	P <sub>c</sub> mm	19894.	5	40 Sund	. 402.1	5
MR (Obs.)	49.73	2	PV/RT	17074.	<del>-</del>	Exp. L.1.%/wt.	. 402.1	+-
MR (Calc.)		5	25°C	1,0000	5	u.		
(nD-d/2)	1.0585	2	30 mm	1.0000	5	Dispersion	154.	2
Dielectric	2,213	5	BP	0.9518 0.9348	5	Flash Point *C		
A 105 to B 270 °C	7.04709 1670.68	4	te tc	0.245	5	Fire Point		1
c '='×	195.6	5	AHc kcal/m	1488.72	2	M. Spec.		
A* 105 to	1.52337	5	ΔHf ΔFf	1	]	Ultra V. X-Ray Dif.		
B* 240 °C	1573.86	5		<del></del>	-	Infrared		
к — —			Viscosity centistokes			Solubility in +		
t <sub>k</sub> Tto	1		7 20 °C	1.553	2	Acetone Carbon tet.	<b>80</b>	
tx C			40	1.157	2	Benzene	<b>80</b>	
A'   25 to	7.39800	5	60 80	0.913 0.741	2 2	Ether	<b>∞</b>	
B' 1105 °C	1887.82 214.5	5	BV 30 to	535.16	4	n-Heptane Ethanol	80 80	
A1# 25 to	1,88781	5	A'   90 °C	2. 35464	4	Water	"	
B'* 105 °C	1789.21	5	(B <sup>V</sup> )  90 to	537, 68	4	Water in	<u> </u>	1
Ac  270 to	7, 69926	5	(A <sup>V</sup> ) 160 °C	₹. 35272	4	Viscosity	1	
Bc tc C	2333.3	5	c <sub>p</sub> liq. *K		Ė	centistokes 100°C	0,617	2
	280.3	5	41 <sup>-</sup>		1	110	0.570	2
Cryos. A° consts. B°			cp vap 300°K	0.3210	2	150	0.420	2
	220 42	5	400 c, vap.	0.4161	2	1		
t <sub>e</sub> °C F	229.43	١,	I	I	L	* (100	<u></u>	<del>!</del>
		2 ^	DI 2 1 14 4	C-1- ( )		grams/100 gr		nt
	ES: 1-Dow			Caic. from de	:c. da	ata 5-Calc, by fo	rmuia	
SOURCE:		A I	>I					
PURIFICAT		AI						
LITERATU	RE REFERE	NCE	S:					
ł								
1								
1								

No. 38 (1-Methylbutyl)benzene STRUCTURAL FORMULA NAME CH3 &H ( CH2)2CH3 2-Phenylpentane Molecular C11H16 Ref. Molecular Weight 148,238 Mole % Pur Ref. Ref. Ref. dt/dP to F.P. 100% °C/mm •K g 25°C 21.082 5 B. P. \*C h BP 0.0544 5 760 mm 193. 5 0.0364 ſ١ te 100 123.9 5 g' ۰ĸ 30 5 5 93.4 30 mm 0.7664 10 70. h' ∆Hm cal/g 31. 5 to ΔHv cal/g m Pressure ۰ĸ 25°C 85, 21 mm 25°C 0.6636 o 30 mm 78.34 5 te 1271. 5 BP 66.63 5 to Density te te (d, e) m 64.13 5 •ĸ g/ml 20°C n' 0.8585 64.99 5 ۰'  $\mathbf{d_4^t}$ 25 0.8546 2 AHv/T 19.46 5 30 0.8507 4 Surface tension 1 95 d 89.31 5 to 2 0.8741 dynes/cm. 20°C 29.41 <u>l</u> 215 <u>.c</u> 0.1175 5 ь -0.0378 28.35 30 5 ď٠ 1 20 87,72 5 40 Ref. Index 27.32 e' 0.1005 95 <sup>n</sup>D 20°C 1.4876 [P] Parachor d vc g/ml 0.276 5 25 1.4853 20°C ml/g 3.618 5 30 4 'c 30 388.6 tc 5 "C" 40 0.7485 4 Pç 5 mm 18930. 5 Sugd. 402.1 MR (Obs.) 49.71 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 49.397 25°C 1.0000 5 (nD-d/2)1.0584 2 30 mm 1,0000 Dispersion 151. 2 Dielectric 2.213 5 0.9507 BP 5 Flash Point °C 0.9346 90 to 6.99955 t<sub>e</sub> 5 Fire Point t<sub>c</sub> 0.246 5 1614.5 В L230 °C M Spec. 199. 5 AHc kcal/m Ultra V AHf A\* 90 to 1.48726 5 X-Ray Dif. ΔFf B+ 225 °C 1519.7 Infrared ĸ Viscosity Viscosi, centistokes °C Solubility in c Acetone to Carbon tet. •c Benzene A' 20 to 7.34746 5 Ether B' 90 °C 1824.3 5 n-Heptane C١ B<sup>V</sup> A<sup>V</sup> 217.4 Ethanol to •c A'\* 20 1,84150 Water to Water in 90 °C (BV) B'\* 1725.6 5 to Ac | 230 to 7.37304 (AV) °C 1950.6 Bc tc\_C cp liq. °K 241.5 Cc Cryos. A° consts. B° c<sub>p</sub> vap. •ĸ t<sub>e</sub> •C c, vap. 215.45 5  $T_R = 0.76 T_0$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det, data 5-Calc. by formula SOURCE: API PURIFICATION: LITERATURE REFERENCES:

TABLE I. ALKYL AND HALO BENZENES

							No. 39	
NAME	(1-Ethylpre	opyl)l	benzene			STRUCTURAL	FORMUL	A
	3-Phenylpe	ntane				CH (C2	H <sub>5</sub> ) <sub>2</sub>	
Mole % Pur.		ecul mula		Molecular Veight 148,23	38			
	•	Ref.			Ref.			Ref.
F. P. °C			dt/dP			f to		1 1
F.P. 100%			*C/mm 25*C	19, 325	5	g '° <u>K</u>		
B. P. °C 760 mm	191.	2	BP	0.0542	5	h		$\vdash$
100	122.2	5	t <sub>e</sub>	0.0364	5	f' to		
30 10	91.7 68.5	5	30 mm	0.7631	5	h' 1		
1	29.5	5	ΔHm cal/g		<u> </u>	m to		$\vdash$
Pressure	0.7303	ا ۔ ا	ΔHv cal/g 25°C	84.70	5	n  •K		H
mm 25°C	0.7282 1265.	5	30 mm	77.99	5	0		
Density	<u> </u>		BP	66.34 63.84	5	m¹ to		
g/m1 20°C	0.860	2	t <sub>e</sub> (d, e)	63.73	5	n'  *K_		1 1
d <sub>4</sub> 25	0.856 0.852	2 4	ΔHv/T <sub>e</sub>	19.46	5			
a	0.876	4	d 90 to	88.75	5	Surface tension dynes/cm. 20°C	29. 61	5
b	-0.038	4	$\frac{215}{d}$ $\frac{^{\circ}C}{to}$	0.117 <b>4</b> 87.22	5	₹ 30	28.52 27.47	5
Ref. Index	1.4877	2	e'   90 °C	0.1006	5	40	21,41	-
<sup>n</sup> D 20°C	1.4854	2	d <sub>c</sub> g/ml v <sub>c</sub> ml/g	0.269 3.722	5	Parachor [P] 20°C		
30	1.4829	4	vc ml/g tc °C	385.4	5	30 40		
"C"	0.7473	4	P <sub>c</sub> mm	18975.	5		402.1	5
MR (Obs.) MR (Calc.)	49.6 49.397	2 5	PV/RT		<b>†</b>	Exp. L.1.%/wt.		
(nD-d/2)	1.0577	Ž	25°C 30 mm	1,0000	5	u. Dispersion	149.	2
Dielectric	2.213	5	BP	0.9514	5	Flash Point *C	147.	+-
A 90 to	6.99268	5	t <sub>e</sub>	0.9351 0.246	5	Fire Point		
B 1 230 °C	1603.6	5	t <sub>c</sub> ΔHc kcal/m	0.5.0	ļ-	M. Spec.		
A* 90 to	1.48192	5	ΔHf			Ultra V. X-Ray Dif.		
B*  220 °C		5	ΔFf		<b> </b>	Infrared		
K — — —			Viscosity centistokes		l	Solubility in +		
t <sub>k</sub> Tto			η °c			Acetone Carbon tet.		1
t C *C	7 3401/				İ	Benzene		
A'   20 to B'   90 °C	7.34016 1812.0	5	L	<b></b>	<b> </b>	Ether n-Heptane		
С' — — —	217.3	5	B <sup>V</sup> to C			Ethanol	ļ	İ
A'* 20 to B'* 90 °C	1.83553	5	⊢ ¬,—			Water Water in		
Ac  230 to	7.4304	5						
Bc tc °C	1998.7	5			$\vdash$	1		
Cc — —	248.6	5	р.					
Cryos. A° consts. B°			c <sub>p</sub> vap. *K					
t <sub>e</sub> °C	213.19	5	c <sub>v</sub> vap.					
$T_{R} = 0.76$	T <sub>C</sub>					grams/100 gra	ms solvei	nt
REFERENC	ES: 1-Dow	2-A	PI 3-Lit. 4-	Calc. from de	t. da	ata 5-Calc, by for	mula	
SOURCE:		API						
PURIFICAT		API						
LITERATU	RE REFERE	NCE	<b>5</b> :					

No. 40 (2-Methylbutyl)benzene STRUCTURAL FORMULA NAME 2-Methyl-l-phenylbutane CH2CH(CH3)C2H5 Molecular C11H16 Mole Ref. Molecular Weight 148,238 % Pur. Formula Ref. Ref. dt/dP ſ to F. P. 100% °C/mm g <u>•</u>K 25°C 25,131 5 B. P. °C h 0.0548 5 5 ВP 197. 760 mm 2 0.0364 te ſ١ to 127.4 100 g¹ <u>•</u>K 96.6 30 0.7729 5 30 mm 10 73.0 5 h' ∆Hm cal/g 34. 5 to m ١ AHv cal/g Pressure •K 25°C 86.22 5 n mm 25°C 0.5501 5 ٥ 30 mm 79.06 5 1280. 5 BP 67.30 5 m' to Density 64.67 5 t (d, e) g/ml 20°C •K 0.859 2 64.61 5 0,855 2  $\mathbf{d_4^t}$ ΔHv/T<sub>e</sub> 19.44 5 30 0.851 4 Surface tension 95 ď 90.37 5 to 0.875 -0.0<sub>3</sub>8 dynes/cm. 20°C 29.48 1 220 •c 0.1171 5 Ъ ď 30 28.39 5 20 to 88.73 1 40 27.34 5 Ref. Index e' 95 °C 0.1001 5 20°C 1.486 (P)  $\mathbf{n}_{\mathbf{D}}$ Parachor d g/ml v ml/g 0.269 5 25 1.484 2 20°C ml/g 3.722 5 30 1.481 4 C 30 •c 393.6 5 ŧ, 40 "C" 0.7458 4 19113. 5 mm Sugd. 402.1 5 MR (Obs.) 49.6 2 PV/RT Exp. L.1.%/wt. 49.397 MR (Calc.) 25°C 1.0000 5 (nD-d/2)1.056 2 u. 30 mm 1,0000 153. 2 Dispersion 2.208 5 Dielectric BP 0.9504 5 Flash Point °C 0.9329 95 to t<sub>e</sub> 7.01336 5 Fire Point tc 0.246 5 1636.5 235 °C M Spec. Ultra V. 199. 5 C AHc kcal/m ΔHf A\* | 95 to 1.49919 X-Ray Dif. B+ 230 °C ΔFf 1541.2 Infrared ĸ Viscosity Solubility in c centistokes Acetone Carbon tet. •c Benzene 7.36214 20 to Ether 1849.2 B١ \_ 95 °C n-Heptane ВŸ C' 217.6 5 Ethanol ÃV Water •c AI\* 20 1.85353 5 Water in B'\* 95 °C (BV) 1749.7 5 to Ac | 235 to 7.4502  $(A^{V})_{1}$ °C Bc \_\_tc\_ 2036.3 liq. •ĸ c<sub>D</sub> Сc 249.0 Cryos. A. c<sub>p</sub> vap. •ĸ consts. B° c, vap. te °C 219.96 5  $T_{R} = 0.76 T_{c}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API **PURIFICATION:** API LITERATURE REFERENCES:

TABLE I. ALKYL AND HALO BENZENES

F.P. *C							N.	0. 41
Mole   Ref.   Molecular   Formula   C11H16   Molecular   Weight 148.238	NAME					_	STRUCTURAL FOR	MULA
Formula		3-Methyl-1	-phe	nylbutane			CH2 CH2 CH ( CH	<sup>1</sup> 3 <sup>)</sup> 2
F. P. *C				C <sub>11</sub> H <sub>16</sub>		38		
F. P. 100%	-		Ref.			Ref.		Ref.
Pressure mm 25°C   1285.   5   5   5   5   5   5   5   5   5	F.P. 100%			°C/mm	37 202		1 11	
Pressure	760 mm 100 30 10	129.1 98.1 74.5	5 5 5	BP t <sub>e</sub> 30 mm	0.0549 0.0364	5 5	f' to g'*K	
Symill 20°C   0,856   2   0,852   2   0,858   2   0,848   4   4   5   19,44   19,44   19	Pressure mm 25°C t <sub>e</sub>	0.5036	5	ΔHv cal/g 25°C 30 mm BP	79.39 67.51	5	n	
a	g/ml 20°C	0.852	2	t <sub>e</sub> (d, e) <u>AHv/T</u> e	64.77 19.44	5	0'	
No.   20°C   1.484   2   2.482   2.482	Ъ			e 225 °C d' 20 to	0.1179 89.20	5	dynes/cm. 20°C 29 30 27	.99   5
MR (Obs.)	<sup>n</sup> D 20°C 25 30	1.482	2	d g/ml	0.269 3.722	5	Parachor [P] 20°C 30	
MR (Calc.)			$\vdash$		i	1 1		. 1 5
A   100 to	MR (Calc.) (nD-d/2)	49.397 1.056	5 2	PV/RT 25°C 30 mm	1.0000	5	u. Dispersion	
As   100 to   1.50402   5	B 1235 °C	1646.9	5	tc ΔHc kcal/m			Fire Point M. Spec.	
Control   Con	B*[230 °C K			ΔFf Viscosity			X-Ray Dif. Infrared	
B	t <sub>k</sub> to	7.2/01/					Acetone Carbon tet, Benzene	
Bi* 100 °C   1761.1   5   (B')  to     Water in	B' 1700 c	1861.0 217.7	5 5	B <sup>V</sup> to A <sup>V</sup> OC			n-Heptane Ethanol	
Bc	B'*100 °C Ac  235 to	1761.1 7.4574	5	(B <sup>V</sup> )  to			Water in	
t <sub>e</sub> °C 222.10 5 c <sub>v</sub> vap.  T <sub>R</sub> = 0.76 T <sub>C</sub> grams/100 grams solvent  REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula  SOURCE: API  PURIFICATION: API	Ce — —			c <sub>p</sub> liq. *K				
T <sub>R</sub> = 0.76 T <sub>C</sub>	consts. B°			1 -				
REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula  SOURCE:  API  PURIFICATION:  API	<b>t<sub>e</sub> °</b> C		5	c <sub>v</sub> vap.	L			
SOURCE: API PURIFICATION: API				DI 2 144 4	Cala ( '			
PURIFICATION: API		E3: 1-DOW			Caic. Irom de	t. da	ta 5-Caic, by formuli	
		ION:						

No. 42 (1, 1-Dimethylpropyl)benzene STRUCTURAL FORMULA NAME (C H3)2 C C2 H5 2-Methyl-2-phenylbutane Molecular C11H16 Mole Ref. Molecular Weight 148, 238 Ref. Ref. F.P. \*C F.P. 100% dt/dP f to \*C/mm 25\*C g <u>•K</u> 20.517 B. P. \*C h ВP 0.0543 5 760 mm 192.38 2 t<sub>e</sub> 0.0364 5 ſ١ to 100 123.39 •ĸ g' 5 92.9 30 30 mm 0.7654 5 5 10 69.5 h' ∆Hm cal/g 31. 5 to m ΔHv cal/g Pressure •ĸ 25°C 30 mm n 85.05 mm 25°C 0.6831 5 o 78.23 5 te 1269. 5 ВP 66, 61 5 m' ١ to Density te (d, e) 64.06 5 g/ml 20°C n' •K 0.8748 2 5 64.00 0.8709 0' 2  $d_4^t$ AHV/Te 19.46 5 30 0.8670 4 Surface tension 90 to 89.07 5 0,8904 -0.0378 dynes/cm. 20°C 31.70 •c 5 215 ь 0.1167 30 30.59 5 to ı 25 87.56 40 29.50 Ref. Index e' •c 90 0.1005 5 20°C 1.4958 [P]  $\mathbf{n}_{\mathbf{D}}$ Farachor dc g/ml vc ml/g tc °C 0.269 5 25 1.4935 2 20°C 3.722 5 30 1.4910 4 30 390.3 5 40 "C" 0.7461 4 P<sub>c</sub> mm 19639. 5 Sugd. 402.1 5 2 MR (Obs.) 49.48 PV/RT Exp. L.1.%/wt. MR (Calc.) 49.397 5 25°C 1.0000 5 (nD-d/2) 1.0584 2 u. 30 mm 1.0000 5 Dispersion 151. 2 Dielectric 2,237 5 BP 0.9518 5 Flash Point °C t<sub>e</sub> 0.9348 5 ⊤90 to 6.99742 5 Fire Point 0.246 tç 1611.1 L230 °C M Spec. AHc kcal/m C 199. 5 Ultra V. ΔHf A\* 90 to 1,48553 5 X-Ray Dif. ΔFf B+ 220 °C 1516.4 Infrared ĸ Viscosity Solubility in c centistokes Acetone to ا ا ا Carbon tet. •c Benzene Ä۱ 15 to 7.34520 Ether B١ \_90 °C 1820.5 5 n-Heptane B C' 5 217.4 to Ethanol Āv ·c A'\* 1.83965 Water 15 to 90 °C 5 Water in B'\* 1721.8 (BV) to 7.43445 Ac | 230 to 5 (AV) °C Bc \_\_tc\_ 2009.0 cp liq. ۰ĸ Cc 249.2 5 Cryos. Aº c<sub>p</sub> vap. •ĸ consts. B° r .C c, vap. 214.75 5  $T_R = 0.76T$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det, data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

NAME	(1, 2 - Dime	thylp	ropyl)benzene		STRUCTURAL	FORMUL/		
	3 - Methyl -	2 - phe	nylbutane		$\dashv$	сиз снен		_
Mole % Pur.		lecul rmula		Molecular Veight 148.2	38			
	<del> </del>	Ref.	T		Ref.	1	1	Ref.
F. P. °C			dt/dP			f to		
F. P. 1009			°C/mm			g   <u>K</u>		1 1
B. P. *C			25°C BP	16.966	5	h		
760 mm 100	188. 119.6	5	t <sub>e</sub>	0.0364	5	f' to		
30	89.3	5	30 mm	0.7582	5	g' <u>K</u>		1
10 1	66.2	5	ΔHm cal/g			h'		$\sqcup$
Pressure	28.	-	ΔHv cal/g			m to		
mm 25°C	0.8370	5	25°C 30 mm	83.95	5	;   ' <u>-</u> -		1 1
te	1258.	5	BP	77.46 65.87	5	m' to		$\vdash$
Density g/ml 20°0			te (3 a)	63.43	5	m' to to		
	0.870 0.866	2 2	te (d, e)	63.31	5	0'		
d <sub>4</sub> 30	0.862	4	ΔHv/T <sub>e</sub>	<b>.</b>	<u> </u>	Surface tension		Н
a	0.886	4	d 90 to	87.94 0.1174	5	dynes/cm. 20°C	31.01	5
b	-0.038	4	d'   20 to	86.47	5	30 40	29.89 28.79	5
Ref. Index		2	e'   90 °C	0.1009	5	Parachor [P]	20	-
D 25	1.484	2	d g/ml	0.269 3.722	5	20°C		
30	1.481	4	vc ml/g tc C	382.9	5	30 40		
"C"	0.7363	4	P <sub>c</sub> mm	19223.	5		402.1	5
MR (Obs.) MR (Calc.		2	PV/RT		1	Exp. L.1.%/wt.		
(nD-d/2)	1.051	2	25°C 30 mm	1.0000	5	u. Dispersion	152.	2
Dielectric	2.208	5	BP	0.9520	5	Flash Point *C	152.	-
A 90 to		5	te	0.9361	5	Fire Point		
B   225 °C	1587.3 199.	5	AHc kcal/m	0.246	1,	M. Spec.		
A* 90 to		5	ΔHc kcai/iii		ł	Ultra V. X-Ray Dif.		
B* 220 °C		5	ΔFf		<u> </u>	Infrared		1
K	<b>-</b>	1	Viscosity centistokes		1	Solubility in +		
c t <sub>k</sub>	-	1	η ·c			Acetone		
€ °C	;	1	•			Carbon tet. Benzene		
A'   20 to B'   90 °C		5				Ether	ĺ	
B' i_90 °C	217.2	5	B <sup>V</sup> to C			n-Heptane Ethanol	İ	
A** 20 to	1.82664	5		1		Water		1
B'* 90 °C		5	(B <sup>V</sup> )  to		1	Water in	<del> </del>	₩
Ac 225 to	7.4181	5	(A <sup>V</sup> )  °C		1	1		
Bc tc C	248.4	5	c <sub>p</sub> liq. °K					
Cryos. A			c <sub>p</sub> vap. 'K					
consts. B	<del></del>	-	c, vap.					
t <sub>e</sub> °C	209.81 76 T	5	I - v - F.	l	l	+ arama/100 ===		<u> </u>
		2-4	PI 3-1.it 4-	Calc. from de	et. d	grams/100 gra ata 5-Calc. by for	mula	
SOURCE:								
PURIFICA	TION:	API						
<del></del>	JRE REFERE	API						
			<b>.</b> .					
i								

No. 44 (2, 2-Dimethylpropyl)benzene NAME STRUCTURAL FORMULA Neopentylbenzene CH2 C(CH3)3 Molecular C11H16 Ref. Molecular Mole Weight 148,238 % Pur. Ref. Ref Ref. F.P. C F.P. 100% dt/dP ſ to \*C/mm 25\*C •ĸ g 15.563 B. P. °C h ВP 0.0537 5 760 mm 186. 2 t<sub>e</sub> 0.0363 5 ſ to 100 117.9 g¹ •ĸ 30 30 mm 0.7549 5 87.7 5 10 64.7 h' 5 ∆Hm cal/g 26. 5 to ΔHv cal/g m Pressure •ĸ n 25°C 83.45 mm 25°C 0.9179 o 30 mm 77.11 5 1253. te 5 ВP 65.54 m' to Density g/ml 20°C ١ te (d, e) 63.13 5 n' •ĸ 0.858 2 63.00 5 01 25 30 ΔHv/Te  $d_4^t$ 0.854 5 19.47 0.850 4 Surface tension 85 87.43 5 to 0.874 4 29.34 dynes/cm. 20°C 210 0.1177 5 <u>•с</u> . h -0.038 4 30 28.26 27.20 5 20 85.97 5 to 40 5 e¹ Ref. Index 85 0.1011 5  $\mathbf{n}_{\mathbf{D}}$ 20°C 1.488 [P] Parachor d<sub>c</sub> g/ml 0.269 5 25 1.486 2 20°C vc ml/g 5 3,722 30 1.483 30 4 378.1 5 40 "C" 0.7495 4 P<sub>c</sub> mm 18762. 5 402.1 5 Sugd. MR (Obs.) 49.8 2 PV/RT Exp. L. 1. %/wt. MR (Calc.) 49.397 5 25°C 1.0000 5 (nD-d/2)1.055 2 30 mm 1.0000 Dispersion Dielectric BP 2.214 5 0.9522 Flash Point °C 0.9366 ₹ 85 to 6.97560 5 Fire Point tc 1576.5 0.246 5 B [220 °C 5 M Spec. Ultra V. С 199. 5 AHc kcal/m ΔHf A\* | 85 to 1.46828 X-Ray Dif. ΔFf B+ 220 °C 1483.0 Infrared Viscosity Solubility in c centistokes Acetone to ·C Carbon tet. Benzene A' | 20 to 7,32200 Ether B' ∟85 °C 1781.4 n-Heptane C' вv 217.1 5 to Ethanol Ãv i A'\* •c Water A'\* 20 to B'\* 85 °C 1.82081 5 Water in (BV) 1683.9 5 to Ac | 220 to 7.4101 (AV) 5 °C Bc \_\_tc\_\_ •c 1963.4 c<sub>p</sub> liq. ۰ĸ Cc 247.8 Cryos, A\* c<sub>p</sub> vap. •ĸ consts. B. c<sub>v</sub> vap. te C 207.55 5  $T_R = 0.76 T_c$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

No. 45 l-n-Butyl-2-methylbenzene STRUCTURAL FORMULA NAME C4 H 9 o-Butyltoluene СНЗ Mole Ref. Molecular Molecular C11H16 Weight 148,238 % Pur Formula Ref Ref. F.P. \*C F.P. 100% dt/dP f to \*C/mm 25\*C ٠ĸ g 40.898 5 B. P. °C h ВP 0.0558 760 mm 208. 137.0 t<sub>e</sub> 0.0364 5 ſ١ to 100 5 g' <u>•к</u> 30 105.52 30 mm 0.7908 5 10 81.4 h١ ∆Hm cal/g 41. to m ∆Hv cal/g Pressure •ĸ n 25°C 89.03 mm 25°C 0.3274 ٥ 30 mm 81.05 5 1307. t<sub>e</sub> 5 BP 69.04 5 m' to Density te te (d, e) 66.26 5 n' •K g/ml 20°C 0.871 2 66.18 5 ۰,  $\mathbf{d_{4}^{t}}$ 25 0.867 2 AHv/T 5 19.43 30 0.863 4 Surface tension d 1105 93.41 to 5 dynes/cm. 20°C 0.887 4 e | 235 d' | 25 31.16 •c 0.1172 5 ь -0.038 30 30.03 to 91.51 40 28.93 5 Ref. Index e'\_|105 0.0991 n<sub>D</sub> 20°C 1.496 [P] Parachor dc g/ml vc ml/g tc °C 0.269 5 25 1.494 2 20°C 3.722 5 30 1.491 4 30 <sup>t</sup>c 411.0 5 40 "C" 0.7496 4 P<sub>c</sub> mm Sugd. 5 19867. 5 402.1 MR (Obs.) 49.7 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 49.397 25°C 1,0000 5 (nD-d/2)1.060 2 30 mm 1,0000 Dispersion Dielectric 5 ВP 2.238 0.9478 5 Flash Point C te te 0.9294 A 105 to 7.05183 Fire Point 0.245 5 B (245 °C 1697.6 M. Spec. AHc kcal/m 199. 5 Ultra V. AHf A\* 105 to 1.53094 5 X-Ray Dif. ΔFf B\* 240 °C 1600.6 Infrared Viscosity Solubility in centistokes Acetone to Carbon tet. ليك •c Benzene A' | 25 to 7.40304 Ether B' 105 °C 1918.2 n-Heptane B<sup>V</sup> | 218.2 Ethanol to •c Water A'# 25 to 1,88724 5 Water in B'\* 105 °C (B<sup>V</sup>) 1816.8 to Acl 245 to (AV) 7.4916 5 °C Bc\_tc\_\*C 2112.3 c<sub>p</sub> liq. •ĸ Cc 250.5 Cryos. A c<sub>p</sub> vap. ٠ĸ consts. B c vap. te °C 232.36  $T_{R} = 0.76 T_{C}$ grams/100 grams solvent 4-Calc, from det. data 5-Calc. by formula REFERENCES: 1-Dow 2-API 3-Lit. SOURCE: API **PURIFICATION:** LITERATURE REFERENCES:

No. 46 1-n-Butyl-3-methylbenzene STRUCTURAL FORMULA NAME Ç4H9 m-n-Butyltoluene Mole Ref. Molecular Molecular C11H16 % Pur Formula Weight 148, 238 Ref. dt/dP to F. P. 100% °C/mm g •K 25°C 35.775 B. P. \*C h BP 5 0.0555 760 mm 205. 134.4 2 t<sub>e</sub> 5 ſ١ to 0.0364 100 5 g' °K 103.1 30 30 mm 0.7859 79.1 5 10 h' ∆Hm cal/g 39. 5 to AHv cal/g m Pressure •ĸ 25°C 30 mm n 88.26 5 mm 25°C 0.3775 a 80.50 5 1300. t<sub>e</sub> 5 BP 68.45 5 m' to Density 65.82 5 te te (d, e) g/ml 20°C n' •ĸ 0.859 65.62 ٥' 0.855 2 ď4 AHv/Te 5 19.43 30 0.851 4 Surface tension 105 to 92.68 5 0.875 4 29.48 dynes/cm. 20°C 230 •c 0.1182 5 Ъ -0.038 4 30 28.39 5 to 20 90.75 40 27.34 5 Ref. Index •' °C 105 0.0994 20°C 1.491 [P]  $\mathbf{n}_{\mathbf{D}}$ 2 Parachor d g/ml vc ml/g tc °C 0.269 5 25 20°C 1.489 2 3.722 30 1.486 4 30 404.7 5 40 "C" 0.7530 4 P<sub>c</sub> mm 5 19350. 5 Sugd. 402.1 MR (Obs.) 50.0 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 49.397 1.062 25°C 1,0000 5 (nD-d/2) 2 u. 30 mm 1.0000 5 Dispersion Dielectric 2,223 5 BP 0.9471 5 Flash Point °C te 0.9305 7.04127 100 to Fire Point tc 0,245 1680.8 L240 °C M Spec. C 199. 5 AHc kcal/m Ultra V ΔHf A\* | 100 to 1,5220 5 X-Ray Dif. ΔFf B\* 235 °C 1584.2 Infrared ĸ Viscosity Solubility in centistokes Acetone to Carbon tet. •c Benzene 20 to 7.3918 Ether B١ <u>`</u>100 ℃ 1899.3 n-Heptane ВŸ 5 218.0 to Ethanol ÃV A'+ •c Water 20 to 1.87797 5 (BV) Water in B'# 100 °C 1798.3 5 to Ac | 240 to 7.4796 5 (AV) °C 2089.6 Bc tc\_C cp liq. ۰ĸ Cc 249.7 Cryos. A\* •ĸ c<sub>p</sub> vap. consts. B° c, vap. t<sub>e</sub> °C 228.98 5  $T_R = 0.76T_c$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

TABLE I. ALKYL AND HALO BENZENES

NAME	l-n-Butyl	-4 - m	ethylbenzene			STRUCTURAL £4H9	FORMULA		
	p-n-Butyl	tolue	ne			An9			
Mole		ecul	C11H16	Molecular	1				
% Pur.	For	mula	911-16	Weight 148.23		ўн <sub>3</sub>	Re		
		Ref.		<b>-</b>	Ref.		, Re		
F.P. *C F.P. 100%		Н	dt/dP *C/mm	ŀ		f to			
B. P. *C		$\vdash$	25°C	39,114	5	8 'K	1		
760 mm	207.	2	BP	0.0557	5		<del> </del>		
100 30	136.2	5	t <sub>e</sub> 30 mm	0.0364	5	f' to	1		
10	104.7 80.6	5	<del></del>	0.7892	5	h'			
1	40.	5	ΔHm cal/g		├	m to	<del>                                     </del>		
Pressure			ΔHv cal/g 25°C	88, 77	5	n <u>K</u>	.]		
mm 25°C t <sub>e</sub>	0.3433 1305.	5	30 mm	80.86	5	0	1 1		
Density	1303.	۲	BP	68.75	5	m¹ to			
g/m1 20°C	0.857	2	t <sub>e</sub> (d, e)	66.10 65.88	5	n'   L _ <u>*K</u>	-		
d <sup>t</sup> 25 4 30	0.853	2	ΔHv/T <sub>e</sub>	19.43	5				
	0.849	4	d 105 to	93.27	5	Surface tension	1 20 20		
a b	0.873 -0.0 <sub>3</sub> 8	4	235 °C	0.1185	5	dynes/cm. 20°C	29.20 5 28.13 5		
Ref. Index	1		d' 25 to e' 105 °C	91.25	5	40	27.08 5		
n <sub>D</sub> 20°C	1.490	2	d <sub>c</sub> g/ml	0, 269	5	Parachor [P]			
25 30	1.488	2 4	V mi/g	3,722	5	20°C 30			
"C"	0,7533	4		407.2	5	40			
MR (Obs.)	50.0	2	P <sub>c</sub> mm	19335.	5		402.1 5		
MR (Calc.)		5	PV/RT 25°C	, ,,,,,,	_	Exp. L.1.%/wt.			
(nD-d/2)	1.062	2	30 mm	1.0000	5	u. Dispersion			
Dielectric	2,220	5	BP	0.9463	5	Flash Point °C			
A 105 to	7.04830	5	t c	0.9297	5	Fire Point	<u> </u>		
B   250 °C	1692.0	5	ΔHc kcal/m	1	+	M. Spec.			
A* 105 to	1.52804	5	ΔHf	ł		Ultra V. X-Ray Dif.			
B* 240 °C	1595.1	5	ΔFf		-	Infrared			
K — — —			Viscosity centistokes			Solubility in +			
t <sub>k</sub> to			η •c			Acetone Carbon tet.			
<u>tς  </u> •c						Benzene			
A'   25 to B'   105 °C	7.39928 1911.9	5			ļ	Ether	1		
C' 1703 0	218.1	5	B <sup>V</sup> to			n-Heptane Ethanol			
A1# 25 to	1.88414	5	L^ <u>`</u>	.	1	Water			
B'* 105 °C	1810.6	5	(B <sup>V</sup> )  to		1	Water in	+		
Acl 250 to	7.5313	5	(A <sup>V</sup> )  °C						
Bc tc C	2154.2	5	c <sub>p</sub> liq. *K		-				
Cryos, A°		Ť	c <sub>p</sub> vap. *K						
consts. B		L	1 -						
t <sub>e</sub> °C	231.23	5	c <sub>v</sub> vap.						
$T_R = 0.77$	Tc					grams/100 gra	ams solvent		
		2-A	PI 3-Lit. 4-	Calc. from de	t. d	ata 5-Calc, by fo	rmula		
SOURCE:			\PI						
PURIFICAT	ION:		PI						
LITERATU	RE REFERE								

No. 48 1-scc-Butyl-2-methylbenzene STRUCTURAL FORMULA NAME CH3 CH C2H5 o-sec-Butyltoluene CH3 Molecular C11H16 Ref. Molecular Mole Weight 148, 238 % Pur. Ref. Ref. dt/dP f to F.P. 100% °C/mm g •ĸ 25°C 24.052 B. P. °C h ВP 0.0547 5 760 mm 196. 2 5 ſ 0.0364 to 100 126.6 5 g' ۰ĸ 30 95.8 5 30 mm 0.7713 5 10 72.3 'n١ ∆Hm cal/g 33. 5 to ΔHv cal/g m Pressure •ĸ n 25°C 85.97 78.88 mm 25°C 0.5765 5 o 30 mm 5 t<sub>e</sub> 1278. 5 BP 66.98 5 ١ to m Density 64.54 5 te (d, e) ۰ĸ g/ml 20°C 'n 0.873 2 64.27 ۰' 25 30 dt4 0.869 2 AHv/T 5 19.45 0.865 Surface tension 95 90, 25 to 5 0.889 31.44 a b 4 dynes/cm. 20°C 1 220 <u>.c</u> 0.1187 5 -0.038 30 30.31 5 20 to 88.47 40 29,20 5 e¹ Ref. Index 95 •c 0.1002 5 20°C 1.497 2 Parachor [P]  $\mathbf{n}_{\mathbf{D}}$ d<sub>c</sub> g/ml 0.269 5 25 1.495 2 20°C vc ml/g tc °C 3.722 5 30 1.492 30 4 394.6 5 40 "C" 0.7494 4 P<sub>c</sub> mm 19565. 5 5 Sugd 402.1 MR (Obs.) 49.7 2 PV/RT Exp. L.1. %/wt. MR (Calc.) (nD-d/2) 49.397 5 1.0000 25°C 5 1.060 2 30 mm 1.0000 5 Dispersion 160. 2 Dielectric 0.9482 2.241 5 BP 5 Flash Point °C 0.9333 A 95 to 7,00990 5 Fire Point 0.246 tç 1631.0 B <u>235 °C</u> 5 M Spec. С 199. 5 AHc kcal/m Ultra V ΔHf A\* 95 to 1.49634 5 X-Ray Dif. ΔFf B+ 225 °C 1535.9 Infrared ĸ Viscosity Solubility in centistokes Acetone to ٠ċ Carbon tet Benzene A'T 20 to 7.35847 Ether \_ 95 °C 1843.0 BI n-Heptane B<sup>V</sup> | 5 C' 217 6 to Ethanol •c Water A'\* 1.85051 20 to 5 B'\* 95 °C (BV) Water in 1743.7 to Ac | 235 to 7.4467  $(A^{V})_{1}$ 5 °C Bc tc C 2031.5 cp liq. ۰ĸ Cc 249.3 Cryos. A\* c<sub>p</sub> vap. •ĸ consts. B° c<sub>v</sub> vap. te °C 218.83 5  $T_R = 0.76 T_c$ grams/100 grams solvent REFERENCES: 1-Dow 4-Calc, from det, data 2-API 3-Lit. 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

TABLE I. ALKYL AND HALO BENZENES

							No. 49
NAME	1-sec-Butyl-	3-m	ethylbenzene			STRUCTURAL	
	m-sec-Butyl	tolue	ne			снз сн с2н	5
Mole % Pur.	Ref. Mol	lecul muls		Molecular Veight 148,23	38	Сн	3
		Ref.			Ref.		Ref
F. P. *C			dt/dP			f to	
F. P. 100	6		*C/mm 25*C	33.030		g   '° <u>K</u>	
B. P. °C 760 mm	194.	2	BP	22.030 0.0545	5	h	
100	124.8	5	t <sub>e</sub>	0.0364	5	f' to	l
30 10	94.2 70.8	5	30 mm	0.7680	5	g' <u>*K</u>	ĺ
i	32.	5	ΔHm cal/g		L	<u> </u>	
Pressure			ΔHv cal/g 25°C	95.46		m to	
mm 25°C	0.6332	5	30 mm	85.46 78.52	5 5	•	1
Density	1273.	-	BP	66.73	5	m' to	
g/ml 20°	C 0.858	2	t <sub>e</sub> (d, e)	64.26	5	n'	ļ
dt 25 4 30	0.854	2	ΔHv/T	19.45	5	·	
	0.850	4	d 95 to	89, 64	5	Surface tension	
a b	0.874 -0.0 <sub>3</sub> 8	4 4	e   220 °C	0.1181	5	dynes/cm. 20°C	29.34 5 28.26 5
Ref. Inde:			d' 20 to	87.97 0.1004	5	40	27.21 5
n <sub>D</sub> 20°		2	d g/ml	0.269	5	Parachor [P]	
25 30	1.488 1.485	2 4	vc ml/g tc °C	3.722	5	20°C	
"C"	0.7524	4		389.3	5	40	
MR (Obs.		2	P <sub>c</sub> mm	18993.	5		402.1 5
MR (Calc	.) 49.397	5	PV/RT 25°C	1.0000	5	Exp. L.1.%/wt.	
(nD-d/2)	1.062	2	30 mm	1.0000	5	Dispersion	161. 2
Dielectric		5	BP te	0.9497	5	Flash Point *C	
A 95 to B 1_230 °C		5	t c	0.246	5	Fire Point	
c	199.	5	ΔHc kcal/m	1		M. Spec. Ultra V.	
A# 95 to		5	ΔHf ΔFf			X-Ray Dif.	
B*[ 225 °C	C   1525. 2	5	Viscosity		T	Infrared	
°	_		centistokes	ł	i	Solubility in Acetone	
		1	η ·c			Carbon tet.	
A'   20 to	7.35112	5				Bensene Ether	
B'   95 °		5	B <sub>v</sub> to	<del></del>	+	n-Heptane	
	217.5	<del></del>	B' to		ļ	Ethanol Water	
A'* 20 to B'* 95 *		5	(B <sup>V</sup> )  to		1	Water in	
Ac  230 to	7.4393	5	(A <sup>V</sup> )  °C		1		
Bc tc	C 2016.2 - 248.6	5	c <sub>p</sub> liq. °K	1	1	1	
Cryos. A		-	{{				
consts. B			P				
t <sub>e</sub> °C	216.57	5	c <sub>v</sub> vap.	<u> </u>		l <u></u>	
$T_{\mathbf{R}} = 0$ .	<del></del>			<del></del>		†grams/100 gra	
		2-A	PI 3-Lit. 4-	Calc. from de	et. da	ata 5-Calc. by for	mula
SOURCE:			API				
PURIFICA			API				
LITERAT	URE REFERE	NCE	5:				

No. 50 1-sec-Butyl-4-methylbenzene NAME STRUCTURAL FORMULA CH3 CH C2H5 p-sec-Butyltoluene Mole Ref. Molecular Molecular  $C_{11}H_{16}$ Weight 148, 238 % Pur Formula ČНЗ Ref. Ref. Ref F, P. \*C dt/dP ſ to F.P. 100% °C/mm g •ĸ 25°C 25, 131 5 B. P. \*C h BP 0.0548 5 760 mm 197. 127.4 2 5 t<sub>e</sub> 5 ſ 0.0364 to 100 g' •ĸ 30 96.6 5 30 mm 0.7729 5 10 73.0 5 h! AHm cal/g 34 to m ΔHv cal/g Pressure •K n 25°C 86, 22 mm 25°C 0.5501 o 30 mm 79.06 1280. 5 te 67.30 5 BP to Density g/ml 20°C 5 m 64 68 t<sub>e</sub> (d, e) •ĸ 0.866 'n 2 64.61 5 ۰,  $d_4^t$ 25 0.862 2 AHv/T 19.44 5 30 0.858 4 Surface tension ١ 95 90,37 đ to •C 5 . 0.882 4 dynes/cm. 20°C 30.45 220 0.1171 e 1 5 ь -0.038 29.34 4 30 71 25 88.73 5 40 28.26 5 Ref. Index 95 0.1001 n<sub>D</sub> 20°C 1.493 [P] Parachor d v g/ml 0.269 5 25 1.491 20°C 2 ml/g 3 72 30 1.488 4 c 30 394.8 5 tc "C" 40 0.7497 4 Pç mm 19355. 5 402.1 5 Sugd MR (Obs.) 49.8 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 49.397 5 25°C 1.0000 5 (nD-d/2) 1.060 30 mm 1.0000 Dispersion 158. 2 5 Dielectric 2.229 5 ВP 0.9504 5 Flash Point °C 95 to t<sub>e</sub> 0.9329 7.01336 5 Fire Point tc 0.246 В <u> 235 °C</u> 1636.5 M Spec. 199. AHc kcal/m Ultra V A Hf A\* | 95 to 1.49919 X-Ray Dif. ΔFf B\* 230 °C 1541.2 Infrared ĸ Viscosity Solubility in centistokes c Acetone to Carbon tet. •c Benzene 20 to ATT 7.36214 Ether B' 95 °C 1849.2 n-Heptane B<sup>V</sup> C١ Ethanol 217.6 to •c Water 20 to 1.85353 Water in B'+ (BV) 95 °C 1749.7 to (A<sup>V</sup>) Ac | 235 to 7.4527 5 °C Bc Ltc\_ °C 2039.6 c<sub>p</sub> liq. ۰ĸ Cc 249.4 Cryos. A cp vap. ٠ĸ consts. Bº te °C c, vap. 219.96 5  $T_{R} = 0.76 T_{A}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API **PURIFICATION:** API LITERATURE REFERENCES:

TABLE I. ALKYL AND HALO BENZENES

						No. 51		
NAME	o-Isobuty	ltolu	ene		STRUCTURAL FORMULA			
	1 - Isobuty	1-2-	methylbenzene		CH2CH (CH3)2 CH3			
Mole		lecul		Molecular				
% Pur.	For	mul		Veight 148.2	-	<u> </u>		
F.P. *C	1	Ref.			Ref.			
F.P. 1007		_	dt/dP *C/mm			f to g •K		
B. P. *C			25°C BP	24.052 0.0547	5	h		
760 mm 100	196. 126.6	2 5	t <sub>e</sub>	0.0364	5	f' to		
30 10	95.8 72.3	5	30 mm	0.7713	5	g' ' <u>*K</u>		
i	33.	5	ΔHm cal/g		-	m to		
Pressure mm 25°C	0 5745	5	ΔHv cal/g 25°C	85.97	5	n   <u>*K</u>		
t <sub>e</sub>	0.5765 1278.	5	30 mm BP	78.88 66.98	5			
Density			t <sub>e</sub> (d, e)	64.54	5	m' to r' 'K		
g/ml 20°C dt 25 4 30	0.8649 0.8610	2 2	t <sub>e</sub> (d, e)	64, 27	5	•'		
<del></del>	0.8571	4	d 95 to	90.25	5	Surface tension		
a b	0.8805 -0.0 <sub>3</sub> 78	4	_e_l_220 °C	0.1187	5	dynes/cm. 20°C   30,29   5 30   29,21   5		
Ref. Index	:		d' 20 to	88.47 0.1002	5	40 28.16 5		
n <sub>D</sub> 20°0	1.4935	2 2	d <sub>c</sub> g/ml	0.269	5	Parachor [P] 20°C		
30	1.4887	4	vc ml/g tc °C	3.72 393.8	5	30 40		
"C"	0.7514	4	Pcmm	19408.	5	Sugd. 402.1 5		
MR (Obs.) MR (Calc.		2	PV/RT	1 0000		Exp. L.1.%/wt.		
(nD-d/2)	1.0610	2	25°C 30 mm	1.0000 1.0000	5	u. Dispersion 162. 2		
Dielectric		5	BP te	0.9482 0.9333	5	Flash Point *C		
B   235 °C		5	L c	0.246	5	Fire Point M. Spec.		
С	199.	5	ΔHc kcal/m ΔHf			Ultra V.		
A* 95 to B* 230 °C		5	ΔFf			X-Ray Dif. Infrared		
K			Viscosity centistokes		1	Solubility in +		
t <sub>k</sub> Tto		ĺ	η •c			Acetone Carbon tet,		
t <sub>x</sub>   °C	_i	۰				Benzene		
B' 95 °C	1843.0	5	B <sub>v</sub> to		ļ	Ether n-Heptane		
C'	217.6	5	B to	İ	ļ	Ethanol Water		
A'* 20 to B'* 95 °C		5	(B <sup>V</sup> )  to	•		Water in		
Ac  235 to	7.4469	5	(A <sup>V</sup> )  °C		<u> </u>	]		
Bc tc C	2031.1	5	c <sub>p</sub> liq. *K					
Cryos, A'			c <sub>p</sub> vap. *K					
t, °C	218.83	5	c <sub>v</sub> vap.					
$T_{R} = 0.$			ш			grams/100 grams solvent		
REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det. data 5-Calc, by formula								
SOURCE:		API						
PURIFICA		API						
LITERATI	JR <b>E</b> REFERE	NCE	<b>5</b> :					

No. 52 l-Isobutyl-3-methylbenzene STRUCTURAL FORMULA NAME QH2CH(CH3)2 m-Isobutyltoluene Mole Ref. Molecular Molecular СНЗ  $C_{11}H_{16}$ % Pur Formula Weight 148,238 Ref. Ref. F.P. C F.P. 100% dt/dP f to °C/mm g <u>•ĸ</u> 25°C 22,030 B. P. °C h 0.0545 5 BP 194. 760 mm 2 0.0364 5 f to 100 124.8 5 ŧ. g' ۰ĸ 30 94.2 5 30 mm 0.7680 5 10 70.8 5 h' AHm cal/g 32. 5 to ΔHv cal/g m Pressure •ĸ n 25°C 85.46 mm 25°C 0.6332 5 n 30 mm 78.52 5 te 1273. 5 BP 5 66.73 m' 1 Density g/ml 20°C 5 te (d, e) 64.26 n' ٠ĸ 0.8536 2 64.07 ۰, 25 0.8497 2 d4 AHV/T 5 19.45 30 0.8458 4 Surface tension Т d 95 to 89.64 5 0.8692 4 dynes/cm. 20°C 28.74 •<u>0</u>200 0.1181 5 215 Ъ -0.0378 30 5 27.70 26.69 87.97 20 5 ı 40 e' 5 Ref. Index 95 0.10041.4888 20°C [P] 2 Parachor D<sub>D</sub> g/ml ď 0.269 5 25 1.4865 2 20°C vc ml/g tc °C 3.72 30 1.4840 4 30 389.1 5 40 "C" 0.7545 4 P<sub>c</sub> mm 5 18962. Sugd. 402.1 5 MR (Obs.) 50.10 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 49.397 1.0000 25°C 5 (nD-d/2) u. 1,0620 30 mm 1.0000 5 Dispersion 163. 2 Dielectric BP 2.217 5 0.9497 Flash Point °C t<sub>e</sub> 0.9341 95 to 7.00299 5 Fire Point 0.246 t<sub>c</sub> B 1230\_°C 1620.0 M Spec. c 199. AHc kcal/m Ultra V. ΔHf A\* | 95 to B\* | 225 °C 1.49044 5 X-Ray Dif. ΔFf 1525.2 Infrared ĸ Viscosity Solubility in c centistokes Acetone to Carbon tet. •c Benzene A' 20 to 7.35112 1830.5 Ether \_5<u>5</u> € B١ n-Heptane  $\mathbf{B}^{\mathbf{v}}$ C 217.5 5 Ethanol Ã۷ A1+ •c Water 20 1.84449 5 to Water in B1# 95 •c (BV) 1731.6 5 to Ac | 230 to 7.4392 4 (A<sup>V</sup>) °C •c Bc \_tc\_ 2016.0 5 cp liq. •ĸ Сc 248.6 Cryos. A. c<sub>p</sub> vap. ۰ĸ consts. B° c<sub>v</sub> vap. t, \*C 216.57 5  $T_{\mathbf{R}} = 0.76\,\mathbf{T}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det. data 5-Calc, by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

NAME	1 - Isobuty	1-4-me	thylbenzene			STRUCTURAL	No. 53		
NAME	p-Isobuty			$\dashv$	STRUCTURAL FORMULA CH2CH(CH3)2				
<b>├</b>	p-1800 <b>u</b> ty	itoraem	<u> </u>		$\dashv$				
Mole % Pur.		Aoleculi Formula		Molecular Weight 148.2	,,				
		Ref	11 10 1	140.2	Ref.	<u>čнз</u>	Ref.		
F. P. *C			dt/dP			f to			
F.P. 100%			°C/mm			g  •K			
B. P. °C	1,00		25°C BP	24.052 0.0547	5	h			
760 mm 100	196. 126.6	2 5	t.	0.0364	5	f' to			
30 10	95.8 72.3	5	30 mm	0.7713	5	g' <u>*K</u>			
i	33.	5	ΔHm cal/g	<u> </u>		m to			
Pressure			ΔHv cal/g 25°C	85.97	5	n  •K			
mm 25°C	0.5765	5 5	30 mm	78.88	5	•			
Density		+	BP t <sub>e</sub>	66.97 64.53	5	m¹ to			
g/ml 20°C	0.8517		te (d, e)	64.26	5	n'   L - <u>*</u> K			
dt 25	0.8478		AHv/T <sub>e</sub>	19.44	5				
	0.8673		d 95 to	90.26	5	Surface tension dynes/cm. 20°C	28, 49 5		
ь	-0.0378	4	d 220 °C to	0.1188 88.47	5	<b>8</b> 30 ∣	27.46 5		
Ref. Index	1.4874	2	e'   95 °C	<del> </del>	5	Parachor [P]	26.45 5		
D 25	1.4851	2	dcg/ml	0.269 3.72	5	20°C			
30	1.4829	_	vc ml/g tc °C	391.6	5	30 40			
"C"	0.7546		P <sub>c</sub> mm	18953	5	Sugd.	402.1 5		
MR (Obs.) MR (Calc.)		2 5	PV/RT		1	Exp. L.1.%/wt.			
(nD-d/2)	1.0616		25°C 30 mm	1.0000	5	u. Dispersion	l		
Dielectric	2,212	5	BP	0.9482	5	Flash Point *C			
A 95 to B 230 °C	7.0099	0 5	t e t	0.9333 0.246	5	Fire Point			
c 2323	199.	5	∆Hc kcal/m	<del> </del>	<b>†</b>	M. Spec. Ultra V.			
A* 95 to	1.4963		ΔHf ΔFf		j	X-Ray Dif.	1		
B*[230 °C	1535.9	5	Viscosity	†		Infrared			
t,to			centistokes			Solubility in Acetone			
t <sub>k</sub> to		1	າ •c			Carbon tet.	1		
A'   20 to	7.3584			İ		Benzene Ether	İ		
B' _ 95 °C	1843.0	5	B <sup>V</sup> to		+	n-Heptane Ethanol			
A1# 20 to	1,8505		A <sup>V</sup> I •C			Water			
B'* 95 °C	1743.6	5	(B <sup>V</sup> )  to			Water in			
Acl 230 to	7.4463		(A <sup>V</sup> )  °C		ļ	<b> </b>			
Bc tc °C	2028.9	5	c <sub>p</sub> liq. *K						
Cryos. A.			c <sub>p</sub> vap. K						
te °C	218,83	5	c vap.		İ				
$T_{R} = 0.7$			<u> </u>	1	J	grams/100 gray	ms solvent		
REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula									
SOURCE:			\PI		-				
PURIFICA"	TION:		API						
LITERATU	RE REFE								
1									

No. 54 1-tert-Buty1-2-methylbenzene STRUCTURAL FORMULA NAME Ç(CH3)3 o-tert-Butyltoluene CH3 Molecular C11H16 Molecular Weight 148.238 Mole Ref. % Pur Ref. Ref. Ref. 2 F.P. \*C F.P. 100% -50, 32 dt/dP to °C/mm g <u>•</u>K 25°C B. P. °C 29.241 5 h ВP 0.0551 5 760 mm 200.45 t<sub>e</sub> 0.0364 5 ť to 100 130.43 5 g¹ ۰ĸ 30 99.38 30 mm 5 0.7785 10 75.6 5 h' ΔHm cal/g 35.9 5 to m ΔHv cal/g Pressure °K 25°C n 87.10 mm 25°C 0.4680 o 39 mm 79.67 5 t<sub>e</sub> 1289. 5 ΒP 5 67.82 m' to Density 65.21 5 te (d, e) g/ml 20°C n' •K 0.8897 65.08 5 01 0.8858 2 d<sub>4</sub> AHv/Te 5 30 0,8819 19.45 4 Surface tension 1100 91.33 0.9053 -0.0<sub>3</sub>78 dynes/cm. 20°C •c 0.1173 ь 30 32.75 5 to 89.59 40 31.60 5 Ref. Index <u>0.</u>0998 e' 100 °C 20°C 1.5076 [P]  $\mathbf{n}_{\mathbf{D}}$ Parachor d g/ml v ml/g 0.269 5 25 1.5053 2 20°C ml/g 30 1.5028 4 c 30 •c 404.2 5 ŧ<sub>c</sub> 40 "C" 0.7500 4 Pc 20417. 5 Sugd. mm 402.1 5 MR (Obs.) 49.63 PV/RT Exp. L.1.%/wt. MR (Calc.) 49.397 25°C 1.0000 5 (nD-d/2) u. 1.0628 2 30 mm 1.0000 5 Dispersion 0.9490 Dielectric 2.273 5 BP Flash Point °C 0.9320 t. 5 T100 to 7,02535 5 Fire Point tc 0.246 1655.5 L240 °C M Spec. Ultra V C AHc kcal/m 199 5 ΔHf A\* | 100 to 1.50872 5 X-Ray Dif. ΔFf B+ 235 °C 1559.6 Infrared ĸ Viscosity Solubility in centistokes Acetone Carbon tet. °C Bensene A۱ 25 to 7.37489 Ether ₽, ⊓<u>∞</u> <u>,c</u> 1870.7 n-Heptane B<sup>V</sup> 217.8 5 to Ethanol ÃV •c A1# 25 to Water 1.86402 5 Water in (BV) B'# 100 °C 1770.5 to Ac | 240 to 7.4646 5  $(A^{V})_{1}$ °C Bc tc C 2065, 2 сp liq. ۰ĸ Cc 250.5 Cryos. A\* •ĸ vap. consts. B. te .C c, vap. 223,85 5  $T_{R} = 0.76 T$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API **PURIFICATION:** API LITERATURE REFERENCES:

TABLE I. ALKYL AND HALO BENZENES

F. P. °C							No. 55				
Mole   Ref   Molecular   C_11H_16   Weight   148, 238   CH3	NAME	1-tert-Buty	1-3-	methylbenzene							
Separation   Formula   Color   Fig.   Formula   Color   Fig.		m-tert-But	yltol	uene			(CH3/3				
F. P. *C						38	СНЗ				
F. P. 100%   B. P. *C			Ref.			Ref.	R	lef.			
BP		-41.370	2	°C/mm							
Pressure	760 mm 100 30	120.69 90.35	5	BP t <sub>e</sub> 30 mm	0.0540 0.0364	5	f' to g'*K				
Density   1261.   5   84.27   5   6   1261.   6   12	1		5		-	$\vdash$	<del></del>				
Density g/ml 20°C   0.8657   2   4   25   0.8618   2   4   30   0.8579   4   4   30   0.8579   4   4   30   0.8579   4   4   30   0.8579   4   4   5   63.40   5   63.40   5   63.40   5   60   63.40   5   60   63.40   5   60   63.40   5   60   63.40   5   60   63.40   5   60   63.40   5   60   63.40   5   60   63.60   63.60   60   63.60   60   63.60   60   63.60   60   60   60   60   60   60   60	mm 25°C			25°C 30 mm BP	77.68 66.00	5	0				
a	g/ml 20°C	0.8618	2	ΔHv/T <sub>e</sub>	63.40	5	n'  *K				
References   1.4944   2	a b	0.8813	4	d 215 °C	0.1181 86.88	5	dynes/cm. 20°C 30.41 30 29.32	5 5 5			
MR (Obs.)   49.88	n <sub>D</sub> 20°C 25 30	1.4921	2	d <sub>c</sub> g/ml	0.269 3.72	5	Parachor [P] 20°C 30	-			
MR (Obs.) 49.88 2 49.89 27			_			5		5			
A   90 to   6.98672   5   1594.2   5   1594.2   5   1594.2   199.   5   AHC   kcal/m   AFf	MR (Calc.) (nD-d/2)	49.397	5	PV/RT 25°C 30 mm			u.				
B   225 °C   1594. 2   5   C   199.   5   AHC   kcal/m   AHC   AFF			_								
A*  90 to B*  220 °C   1500.3   5   AFf	B   225 °C	1594.2	5	t <sub>c</sub> ΔHc kcal/m			M. Spec.				
Centistokes    Comparison   Com	B* 220 °C			ΔFf			X-Ray Dif. Infrared				
B'   90 °C   1801.4   5   B'   to   n-Heptane   Ethanol   Water   Water in    A'   15 to   1.83036   5   A'   °C   Water   Water in    Ac  225 to   7.4224   5   (A')  °C   C_c   c_	t <sub>k</sub> to t <sub>x</sub> °C			centistokes			Acetone Carbon tet,				
B1	B' i_9 <u>0 °C</u> C'	1801.4	5 5	B <sup>V</sup> to		-	n-Heptane Ethanol				
Bc   tc   c   1986.6   5   c   liq.	B'* 90 °C	1703.3	5	(B <sup>V</sup> )  to	-						
te °C 211.23 5 cv vap.  TR = 0.76 Tc * grams/100 grams solvent  REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det. data 5-Calc. by formula  SOURCE: API  PURIFICATION: API	Bc tc C	1986.6	5			T					
T <sub>R</sub> = 0.76 T <sub>C</sub>	consts, B°			l							
REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det. data 5-Calc, by formula  SOURCE:  API  PURIFICATION:  API			5	~ ·=p.	1		+ (100				
SOURCE: API PURIFICATION: API	REFERENC	FS: 1-Dov	2-4	PI 3-1.i+ 4-	Calc. from de	et de					
PURIFICATION: API		DUW			Hom di		J-Oute. by tormula				
		ION:									
	·										

No. 56 l-tert-Butyl-4-methylbenzene STRUCTURAL FORMULA NAME C (CH3)3 p-tert-Butyltoluene Molecular C11H16 Ref. Mole Molecular % Pur Weight 148,238 ČН Ref. Ref. -52,515 dt/dP f to \*C/mm 25\*C F.P. 100% g <u>•ĸ</u> 20.865 5 B. P. °C h 0.0544 5 BP 760 mm 192.76 2 0.0364 5 f t<sub>e</sub> to 100 123.72 5 g' •ĸ 30 93.16 5 30 mm 0.7660 5 10 69.8 h' ΔHm cal/g 30.7 5 to AHv cal/g m Pressure •ĸ n 25°C 85.15 mm 25°C 0.6710 5 o 30 mm 78.30 5 te 1270. ВP 66.57 5 m' ١ to Density g/ml 20°C 64.09 te (d, e) 5 n' ٠ĸ 0.8612 2 63.93 5 ٥' 25 0.8573 d4 2 AHV/T 19.45 5 30 0.8534 4 Surface tension 90 89.27 5 to a b 0.8768 4 dynes/cm. 20°C 29.78 •c 0.1178 5 220 -0.0378 30 28.71 27.67 5 •C 87.66 15 1 40 Ref. Index •' 90 0.1005 5 20°C 1.4918  $\mathbf{n}_{\mathbf{D}}$ [P] 2 Parachor d<sub>c</sub> g/ml 0,269 5 25 1.4895 20°C ml/g \*C 3.72 30 1.4871 4 t<sub>C</sub> 30 388.7 5 40 "C" 0.7522 4 P<sub>c</sub> mm 19185. 5 Sugd. 402.1 5 MR (Obs.) 49.92 2 PV/RT Exp. L.1. %/wt. MR (Calc.) 49.397 1.0000 25°C 5 u. (nD-d/2) 1.0612 2 30 mm 1.0000 5 Dispersion 170. 2 Dielectric 2,225 5 BP 0.9503 Flash Point °C 0.9345 6.99872 A 90 to 5 Fire Point tç 0.246 5 B L230 °C 1613.2 M Spec. Ultra V С 199. AHc kcal/m ΔHf A\* | 90 to 1.48683 X-Ray Dif. ΔFf B\* 225 °C 1518.5 Infrared ĸ Viscosity Solubility in centistokes Acetone to •c Carbon tet. Benzene ĀT 15 to 7.34658 Ether B' \_ 90 °C 1822.9 n-Heptane  $\mathbf{B}^{\mathbf{v}}$ C' 217.4 to Ethanol ÃV İ •c Water 1.84078 15 to 5 (BV) Water in B'+ 1724.1 5 to Ac | 230 to 7.4344  $(A^{V})_{I}$ 5 °C Bc tc C 2008.5 5 cp liq. °ĸ Сc 248.7 Cryos. A\* c<sub>p</sub> vap. •ĸ consts. B° t, \*C c, vap. 215.18 5  $T_{R} = 0.76 T$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det, data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

TABLE I. ALKYL AND HALO BENZENES

							No. 57	
NAME	1-Ethyl-2-	n-pr	opylbenzene		STRUCTURAL C2H5			
Mole % Pur.		ecul		Molecular Veight 148.2	38	€ C3F	<sup>1</sup> 7	
		Ref.			Ref.		Ref.	
F.P. °C F.P. 1009			dt/dP *C/mm			f   to		
B. P. *C 760 mm	203.	2	25°C BP t <sub>e</sub>	32,748 0,0553 0,0364	5 5	h   f'   to		
100 30 10	132.7 101.5 77.6	5 5 5	30 mm	0.7827	5	g' <u>*K</u>		
1	38.	5	ΔHm cal/g	<u> </u>	-	m to		
Pressure mm 25°C	0.4148 1295.	5	ΔHv cal/g 25°C 30 mm	87.75 80.14	5	o   •K		
Density g/ml 20°0		2	BP t <sub>e</sub> t <sub>e</sub> (d, e)	68.17 65.54 65.37	5 5 5	m¹ to		
dt 25 4 30	0.8705 0.8666	2	ΔHv/T <sub>e</sub>	19.44	5	o' Surface tension		
a b	0.8900 -0.0 <sub>3</sub> 78	4	d 100 to e 230 °C d 25 to	92.10 0.1179 90.24	5 5 5	dynes/cm. 20°C 30 40	31.65 5 30.53 5	
Ref. Index		2	e'   100 °C	0.0996	5	Parachor [P]	29.45 5	
D 25	1.4969 1.4945	2	d g/ml vc ml/g t °C	0.269 3.72	5	20°C		
"C"	0.7512	4	tc °C Pc mm	405.2 19960.	5	40	402.1 5	
MR (Obs. MR (Calc.		2 5	PV/RT			Exp. L.1.%/wt.		
(nD-d/2)	1.0620	2	25°C 30 mm	1.0000	5	u. Dispersion		
Dielectric		5	BP te	0.9478 0.9310	5	Flash Point *C		
A 100 to B   240 °C	1669.7	5 5 5	tc AHc kcal/m	0, 245	5	Fire Point M. Spec.		
A* 100 to B* 235 °C		5	ΔHf ΔFf	·		Ultra V. X-Ray Dif. Infrared		
K c			Viscosity centistokes			Solubility in +		
			η •c			Acetone Carbon tet. Benzene		
A'   25 to B'   100 °C	7,38436	5				Ether n-Heptane		
C'	217.9	5	B <sup>V</sup> to A <sup>V</sup> •C			Ethanol Water		
A'* 25 to B'* 100 *6		5	(B <sup>V</sup> )  to			Water in		
Ac 240 to	2079.6	5	(A <sup>V</sup> )  °C c liq. °K		$\vdash$	4		
Cryos. A	- 250.2	5	c <sub>p</sub> liq. °K c <sub>p</sub> vap. °K					
te °C	226.72	5	c <sub>v</sub> vap.					
T <sub>R</sub> = 0.76 T <sub>C</sub> grams/100 grams solvent								
REFEREN	CES: 1-Dow	2-A	PI 3-Lit. 4-	Calc. from de	et. de	ata 5-Calc. by for	mula	
SOURCE:			API					
PURIFICA			API					
LITERAT	URE REF <b>e</b> re	NCE	S:					

No. 58 NAME STRUCTURAL FORMULA l-Ethyl-3-n-propylbenzene Ç2H5 Molecular C11H16 Ref. Molecular Mole Weight 148, 238 % Pur Formula Ref. Ref Ref. F.P. °C F.P. 100% dt/dP f to °C/mm •ĸ g 25°C 29.975 B, P. \*C h ВP 0.0551 760 mm 201. 5 5 ſ' 0.0364 to 100 130.9 5 g' •ĸ 30 99.8 5 30 mm 0.7795 5 10 76.1 5 h' AHm cal/g 1 36. 5 m to AHv cal/g Pressure n •K 25°C 87.24 79.78 mm 25°C 0.4558 30 mm 5 te 1290. 5 BP 67.88 5 m Density g/ml 20°C to te (d, e) 65.25 5 •ĸ 'n 0.8607 2 5 65.12 ۰,  $\mathbf{d_4^t}$ 25 0.8568 ΔHv/Te 19.43 5 30 0.8529 4 Surface tension 100 to C 91.51 5 dynes/cm. 20°C 29.71 . 0.8763 • \_225\_ 0.1176 Ъ 30 -0.0378 4 28.65 27.61 5 to 25 89.73 40 e' Ref. Index 0.0998 100 1.4930  $\mathbf{n}_{\mathbf{D}}$ 20°C 2 [P] Parachor d<sub>c</sub> g/ml 0.269 5 25 1.4907 2 20°C c ml/g 3.72 30 1.4882 4 30 •c 400.1 5 t<sub>c</sub> 40 "C" 0.7543 4 P<sub>c</sub> mm 5 5 19415. Sugd. 402.1 MR (Obs.) 50.05 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 49.397 1.0000 5 25°C (nD-d/2) 1.0626 2 30 mm 1.0000 5 Dispersion Dielectric 2.229 5 BP 0.9488 Flash Point °C 0.9316 A 100 to 7.02727 t<sub>e</sub> 5 Fire Point 0.245 5 B L240 °C 1658.6 M Spec. C 199. AHc kcal/m Ultra V AHf A\* | 100 to 1.51071 X-Ray Dif. ΔFſ B+ 230 °C 1562.7 Infrared Viscosity Solubility in centistokes c Acetone to Carbon tet. •c Benzene A' 25 to 7.37693 Ether B' U ∞ °C 1874.2 n-Heptane B<sup>V</sup> A<sup>V</sup> C' 217.8 to Ethanol •c Water A'\* A'\* 25 to B'\* 100 °C 1.86569 5 (BV) Water in 5 1773.9 to (A<sup>V</sup>) Ac | 240 to 7.4639 °C Bc tc\_C 2062.6 сp liq. ۰ĸ 249.4 Cryos. A. c<sub>p</sub> vap. ۰ĸ consts. B. t. °C c, vap. 224.47 5  $T_R = 0.76 T$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

							No. 59	
NAME	l-Ethyl-4-	n-pr	opylbenzene	STRUCTURAL C2H5	FORMULA			
Mole		lecul		Molecular				
% Pur.	For	rmul		Veight 148.2	_	С <sub>3</sub> н <sub>7</sub>	E	_
	1	Ref.			Ref.		R	lef.
F.P. °C F.P. 100%			dt/dP °C/mm 25°C	35.774	5	f to to		
B. P. °C 760 mm	205.	2	BP	0.0555	5	h		$\dashv$
100	134.4	5	t <sub>e</sub>	0.0364	5	f' to		ŀ
30 10	103.1 79.1	5	30 mm	0.7859	5	h'		
1	39.	5	ΔHm cal/g			m to	<del></del>	$\neg$
Pressure mm 25°C	0.3375	5	ΔHv cal/g 25°C	88.26	5	n		
t <sub>e</sub>	0.3775	5	30 mm BP	80.50 68.46	5			_
Density	1			65.83	5	m' to		
g/ml 20°C	0.8594 0.8555	2 2	t <sub>e</sub> (d, e)	65, 62	5	",		
d <sub>4</sub> 25	0.8516	4	ΔHv/T <sub>e</sub>	19.43	5	Surface tension		$\dashv$
	87.50	4	d 105 to e 230 °C	92.68 0.1182	5	dynes/cm. 20°C		5
b Def Juden	-0.0378	4	d'   25 to	90.75	5	30 40		5
Ref. Index n <sub>D</sub> 20°C	1.4921	2	e'   105 °C	0.0994	5	Parachor [P]		
25 30	1.4898	2	d <sub>c</sub> g/ml v <sub>c</sub> ml/g	0.269 3.72	5	20°C		- 1
"C"	0.7542	4	vc ml/g tc °C	405.4	5	30 40		
MR (Obs.)	<del> </del>	2	P <sub>c</sub> mm	19495.	5	Sugd.	402.1	5
MR (Calc.)	49.397	5	PV/RT 25°C	1,0000	5	Exp. L.1.%/wt.		
(nD-d/2)	1.0624	2	30 mm	1.0000	5	Dispersion		
Dielectric	2.226	5	BP te	0.9471 0.9305	5	Flash Point C		
A 100 to B   250 °C	7.04127 1680.8	5	te	0,245	5	Fire Point		
С	199.	5	ΔHc kcal/m ΔHf			M. Spec. Ultra V.		
A* 100 to B* 240 °C	1.52201	5	ΔFÍ			X-Ray Dif. Infrared		
K 240 5	1584.2	"	Viscosity			Solubility in +		
t <sub>k</sub> – to	-	{	centistokes 7 °C	!		Acetone		
tx c		ł	,		1	Carbon tet. Benzene		
A'  25 to	7.39181 1899.3	5				Ether		
B'   100 °C	218.0	5	B <sup>V</sup> to			n-Heptane Ethanol		
A'* 25 to	1.87797	5	A			Water Water in		
B'* 100 °C		5	(B <sup>V</sup> )  to			4861 111	<del> </del>	
Acl 250 to Bc tc *C	7.5235 2141.0	5	(A <sup>V</sup> )  °C		├-	4		
Cc	256.7	5	c <sub>p</sub> liq. *K					
Cryos. A° consts. B°			c <sub>p</sub> vap. *K					
t <sub>e</sub> °C	228.98	5	c <sub>v</sub> vap.		<u> </u>			
$T_{\mathbf{R}} = 0.7$						† grams/100 gra		
	CES: 1-Dow	2-A	PI 3-Lit. 4-	Calc. from de	et. d	ata 5-Calc. by for	mula	
SOURCE:		A	PI					
PURIFICA'			PI					
LITERATO	RE REFERE	NCE	s:					

No. 60 STRUCTURAL FORMULA NAME 1-Ethyl-2-isopropylbenzene o-Ethylcumene C<sub>2</sub>H<sub>5</sub> Molecular C11H16 CH (CH3)2 Mole Ref. Molecular Weight 148,238 % Pur Formula Ref. Ref. Ref F.P. \*C F.P. 100% dt/dP ſ to °C/mm <u>•K</u> g ı 25°C 21.082 5 B, P. °C h ВP 0.0544 760 mm 193. 2 t<sub>e</sub> 0.0364 5 f 100 to 123.9 5 g' °K 30 30 mm 0.7664 5 93.4 10 5 70.0 h١ AHm cal/g 31. 5 to m AHv cal/g Pressure •K n 25°C 85.21 mm 25°C 0.6636 5 o 30 mm 78.34 5 1271. te 5 ВP 66.64 5 m' to Density 64.15 te (d, e) n' •K g/ml 20°C 0.888 64.01 5 2 ۰,  $d_4^t$ 0.884 2 ΔHv/T, 19.46 5 30 0,880 4 Surface tension 95 89.30 5 0.904 to a b dynes/cm. 20°C 33,66 220 0.1174 <u>•с</u> -0.038 4 30 32.46 31.30 ă 20 5 to 87.72 ī 40 5 •1 Ref. Index •c 0.1005 95 5 20°C 1.508 2 Parachor [P] n<sub>D</sub> d<sub>c</sub> g/ml 5 0.269 25 30 1.506 2 20°C ml/g 3.72 1.503 4 30 ·c  $\mathbf{t_c}$ 392.8 5 40 "C" 0.7519 4 19989. Pc 5 mm 5 Sugd 402.1 MR (Obs.) 49.8 2 PV/RT Exp. L. 1. %/wt. MR (Calc.) 49.397 5 1.0000 25°C 5 (nD-d/2) 1.064 2 160. 2 30 mm 1,0000 5 Dispersion Dielectric 2.274 5 BP 0.9506 5 Flash Point °C 0.9345 A 90 to 6.99955 5 t, Fire Point 5 tç 0.246 B 1235 °C 1614.5 5 M Spec. C 199. 5 AHc kcal/m Ultra V ΔHf A\* 90 to 1.48738 5 X-Ray Dif. ΔFf B+ 225 °C 1519.8 Infrared Viscosity ĸ Viscos.., centistokes \*C Solubility in c Acetone to Carbon tet. ·c Benzene 15 to 7.34746 5 Ether B١ <u>•c</u> 1824.3 5 <u>90</u> n-Heptane B<sup>V</sup> A<sup>V</sup> C 217.4 Ethanol •c Water 15 1.84150 5 5 Water in B'+ 90 °C (BV) 1725.5 to Ac | 235 to 7.2793 (AV) 5 °C •c Bc tc\_ 1865.3 5 cp liq. ۰ĸ Cc 231.3 Cryos, A° consts, B° c<sub>p</sub> vap. •ĸ t<sub>e</sub> •C c<sub>v</sub> vap. 215.45 5  $T_{R} = 0.76 T_{c}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

TABLE I. ALKYL AND HALO BENZENES

							No. 61	
NAME	1-Ethvl-3-	isopr	opvlbenzene			STRUCTURAL	FORMUL.	A
	m-Ethylcu				Ç2H5			
					$\dashv$			
Mole	Ref. Mo	lecul	C11H16	Molecular	. 1	<b>√</b> Усно	CH3)2	1
% Pur.	For		11 10 1	Veight 148.23				
	<del>1</del>	Ref.			Ref.	<u> </u>		Ref.
F.P. C F.P. 100%	<u> </u>		dt/dP *C/mm			f to		
	<u> </u>		25°C	20.194	5	g <u>•K</u>		
B.P. °C 760 mm	192.0	2	BP	0.0543	5	h		Н
100	123.1	5	t <sub>e</sub>	0.0364	5	f' to		
30 10	92.6	5	30 mm	0.7648	5	h'		
1	30.	5	ΔHm cal/g		<u> </u>	m to	<del> </del>	$\vdash$
Pressure			ΔHv cal/g 25°C	84.96	5	n <u>K</u>		
mm 25°C	0.6948 1268.	5	30 mm	78.17	5			1 [
t <sub>e</sub> Density	1200.	-	BP	66.46	5	m¹ to		
g/ml 20°C	0.859	2	te te (d, e)	63.97 63.83	5	n'  K_		1 1
dt 25 4 30	0.855	2 4	AHV/T	19.45	5			Ш
	0.851	4	d on to	89.06	5	Surface tension	30.40	_
a b	0.875	4		0.1177	5	dynes/cm. 20°C	29.48 28.39	5 5
Ref. Index	1		d' 15 to e' 90 °C	87.47 0.1005	5	40	27.34	5
n <sub>D</sub> 20°C	1	2	d <sub>c</sub> g/ml	0,269	5	Parachor [P]		! !
25 30	1.490 1.487	2	vc ml/g tc °C	3.72	5	20°C 30		
"C"	0.7544	4		386.7	5	40		
MR (Obs.)	<del></del>	2	P <sub>c</sub> mm	18967.	5		402.1	5
MR (Calc.)		5	PV/RT 25°C	1.0000	5	Exp. L.1.%/wt.		1 1
(nD-d/2)	1,062	2	30 mm	1.0000	5	Dispersion	161.	2
Dielectric	2,226	5	BP te	0.9507 0.9345	5	Flash Point *C		
A 90 to B 230 °C	6.99611	5	tc	0.246	5	Fire Point		
c (2.32.2)	199.	5	ΔHc kcal/m		<b>—</b>	M. Spec. Ultra V.		
A* 90 to	1.48510	5	ΔHf ΔFf			X-Ray Dif.		
B*[220 °C	1514.7	5	Viscosity		$\vdash$	Infrared		1
c	. 1	ļ	centistokes		1	Solubility in * Acetone		1
t <sub>k</sub> to		1	η ·c		1	Carbon tet.		
X	7 24201	-				Benzene		1
A'   20 to B'   90 °C	7.34381 1818.2	5			—	Ether n-Heptane	1	
C'	217.4	5	B <sup>V</sup> to		ł	Ethanol		
A'+ 20 to	1.83850	5	l−.=v. <del>−</del> − − -	-		Water Water in		
B'* 90 °C	+	5	(B <sup>V</sup> )  to		1			$\vdash$
Ac 230 to Bc t <sub>c</sub> *C	7.4329 2003.0	5	(A <sup>V</sup> )  °C	ļ	$\vdash$	4		
Cc	248.4	5	c <sub>p</sub> liq. *K			1	1	1
Cryos. A*			c <sub>p</sub> vap. *K	1		1		1
consts. B°		↓	c, vap.	1			j	1
te °C	214.32	5		l	L	L		
$T_R = 0.7$						grams/100 gra		nt
	CES: 1-Dow	Z-A	PI 3-Lit. 4-	Calc. from de	et. d	ata 5-Calc. by fo	rmula	
SOURCE:			API					
PURIFICA			API					
LITERATU	RE REFERE	NCE	S:					
1								
L								

No. 62 NAME STRUCTURAL FORMULA l-Ethyl-4-isopropylbenzene Ç2H5 p-Ethylcumene Mole Ref. Molecular Molecular  $C_{11}H_{16}$ CH ( CH3)2 Weight 148.238 % Pur Formula Ref. Ref Ref <u>F.P.</u> °C dt/dP f to F.P. 100% °C/mm <u>•</u>K g 25°C 24.693 5 B. P. °C h BP 0.0547 5 760 mm 196.6 127.1 t. f 0.0364 5 to 5 100 g' ۰ĸ 30 96.3 30 mm 0.7723 5 5 10 72.7 h' ∆Hm cal/g 33 to m ΔHv cal/g Pressure •ĸ n 25°C 86.12 mm 25°C 0.5605 5 o 30 mm 78.98 1279. 5 te BP 67.19 5 Density m to 64.62 5 te te (d, e) •ĸ g/ml 20°C n' 0.8585 5 64.49 0  $\mathbf{d_4^t}$ 25 0.8546 2 AHv/T 19.44 5 30 0.8507 4 Surface tension 1 95 d 90.30 5 0.8741 8 dynes/cm, 20°C 29.41 e \_1 220 <u>•с</u> 0.1176 -0.0378 Ъ 30 28.35 5 ð٠ 15 88.63 40 Ref. Index 27.32 e' •c 1 95 0.1001 n<sub>D</sub> 20°C 1.4923 [P] Parachor d g/ml vc ml/g 0.269 5 25 1.4900 2 20°C 3.72 30 1.4875 4 30 •c t<sub>c</sub> 393.6 5 "C" 40 0.7553 4 Pç mm 19206. 5 Sugd. 402.1 5 MR (Obs.) 50.12 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 49.397 5 25°C 1.0000 5 (nD-d/2) 1.0630 30 mm 1.0000 Dispersion 163. 2 5 Dielectric BP 2,227 5 0.9498 5 Flash Point °C 95 to 1235 °C te 0.9331 5 7.01198 Fire Point tç 0.246 В 1634.3 M Spec. 199. AHc kcal/m Ultra V. ΔHſ A\* | 95 to 1.49804 5 X-Ray Dif. ΔFf B\* 230 °C 1539.1 Infrared ĸ Viscosity Solubility in centistokes c Acetone to Carbon tet. •c Benzene A' | 20 to 7.36068 5 Ether <u>.c</u> RI 95 1846.7 n-Heptane B<sup>V</sup> A<sup>V</sup> c٠ 217.6 to Ethanol •c Water 20 1.85233 5 B'\* 95 (BV) Water in •c 1747.3 to 7.4491 Ac | 235 to  $(A^{V})_{1}$ °C Bc \_tc\_ •c 2034.4 5 сp liq. ۰ĸ Cc 249.0 Cryos. A ۰ĸ cp vap. consts. B° te C c, vap. 219.51 5  $T_R = 0.76 T_c$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

TABLE I. ALKYL AND HALO BENZENES

							No. 63
NAME	1,2-Dimeth	yl-3	-n-propylbenze	ne	Ì	STRUCTURAL	FORMULA
	3-Propyl-o	-xyle	ne			СH <sub>3</sub> СH <sub>3</sub>	
Mole % Pur.		ecula mula		Molecular Veight 148.23	38	<b></b>	
		Ref.			Ref.		Ref.
F.P. °C F.P. 100%			dt/dP °C/mm			f to	
B. P. °C 760 mm 100 30 10	210.7 139.4 107.7 83.5 43.	2 5 5 5	25°C BP te 30 mm	46.159 0.0560 0.0364 0.7951	5 5 5	h   to g'  °K	
Pressure mm 25°C te Density	0. 2878 1314.	5	ΔHv cal/g 25°C 30 mm BP t <sub>e</sub>	89.72 81.54 69.44 66.66	5 5 5	m to	
g/ml 20°C dt 25 4 30	0.8864 0.8825 0.8786	2 2 4	t <sub>e</sub> (d, e) ΔHv/T <sub>e</sub>	66.54 19.43	5	n' K o' Surface tension	
a b Ref. Index	0.9020 -0.0 <sub>3</sub> 78	4	d 105 to e 235 °C d 20 to e' 105 °C	94.20 0.1175 92.20	5 5 5	dynes/cm. 20°C 30 40	33.42 5 32.26 5 31.13 5
n <sub>D</sub> 20°C 25 30	1.5075 1.5053 1.5027	2 2 4	d g/ml vc ml/g tc °C	0.0989 0.269 3.72 418.0	5 5 5	Parachor [P] 20°C 30	
"C"	0.7526	4	P <sub>c</sub> mm	20645.	5	40 Sugd.	402.1 5
MR (Obs.) MR (Calc.) (nD-d/2) Dielectric A 105 to	49.81 49.397 1.0643 2.273 7.06138	2 5 2 5	PV/RT 25°C 30 mm BP t	1.0000 1.0000 0.9467 0.9284	5 5 5 5	Exp. L.l.%/wt. u. Dispersion Flash Point *C Fire Point	166. 2
B 1250 °C C A*1105 to	1712.8 199. 1.53914	5 5	tc  AHc kcal/m  AHf  AFf	0.245	5	M. Spec. Ultra V. X-Ray Dif.	
B* 245 °C K c t <sub>k</sub> to t <sub>x</sub> °C	1615.4	5	Viscosity centistokes 7 °C			Infrared Solubility in + Acetone Carbon tet. Benzene	
A'   20 to B'   105 °C C' A' + 20 to	7.41319 1935.4 218.3	5 5 5	B <sup>V</sup> to A <sup>V</sup> C			Ether n-Heptane Ethanol Water	
B'*105 °C	1833.4	5	(B <sup>V</sup> )  to			Water in	-
Ac 250 to Bc t <sub>c</sub> °C Cc	7.5021 2133.5 251.4	5 5 5	c <sub>p</sub> liq. °K				
Cryos, A° consts. B°			c <sub>p</sub> vap. *K				
t <sub>e</sub> *C T <sub>R</sub> = 0.76	235.41	5	c <sub>v</sub> vap.	I	1	+ ===== (100	
		2 4	DI 3 144 4	Calc from d		grams/100 gra	
	ED: 1-DOM			Calc. Irom de	ει. αι	ata 5-Calc. by for	
SOURCE:	TON.		PI				
	RE REFERE		<u>S</u> :				

	1.2.5							64
NAME	1,2-Dimet	nyı-4	-n-propylbenze	ne 		STRUCTURAL 1	FORMUL	A
<u> </u>	4-Propyl-	-xyle	ne			СНЗ		
Mole % Pur.		lecula rmula		Molecular Weight 148,2	38	C <sub>3</sub> H <sub>7</sub>		
		Ref.			Ref			Ref.
F.P. C F.P. 1007			dt/dP *C/mm 25*C	42.555		f to		
B. P. *C 760 mm 100 30 10	208.9 137.8 106.2 82.1	2 5 5	BP t <sub>e</sub> 30 mm	42.555 0.0558 0.0364 0.7922	5 5 5	h f' to g'  K		
Pressure mm 25°C t <sub>e</sub>	0.3138 1310.	5 5 5	ΔHm cal/g ΔHv cal/g 25°C 30 mm BP	89.26 81.21 69.11	5 5 5	m to		
Density g/ml 20°0 dt 25 4 30	0.8715 0.8676 0.8637	2 2 4	t <sub>e</sub> (d, e) ΔHv/T <sub>e</sub>	66, 41 66, 23 19, 43	5 5 5	m' to n' K o' Surface tension		-
a b Ref. Index	0.8871 -0.0 <sub>3</sub> 78	4	d'   235 °C d'   20 to	93.73 0.1178 91.74	5 5 5	dynes/cm. 20°C 30 40	31.23 30.13 29.05	5 5 5
n <sub>D</sub> 20°0 25 30		2 2 4	e'   105 °C  d g/ml vc ml/g tc °C	0.0991 0.269 3.72 413.0	5 5 5	Parachor [P] 20°C 30	27.03	
"C"	0.7549	4	P <sub>c</sub> mm	20053.	5	40 Sugd.	402.1	5
MR (Obs. MR (Calc. (nD-d/2) Dielectric	1, 0642 2,250	2 5 2 5	PV/RT 25°C 30 mm BP	1.0000 1.0000 0.9466 0.9294	5 5 5	Exp. L.1.%/wt. u. Dispersion Flash Point °C	168.	2
A 105 t B 1250 °C	2 1702.6 199.	5 5 5	te tc AHc kcal/m	0.245	5	Fire Point  M Spec. Ultra V.		
A* 105 to B* 240 °C K c	1605.3	5	AFf Viscosity centistokes			X-Ray Dif. Infrared Solubility in + Acetone		-
t <sub>k</sub> t <sub>x</sub> to the transfer of t	7,40642	5	η •c			Carbon tet. Benzene Ether n-Heptane		
A'* 20 to B'* 105 *6		5 5 5	B <sup>V</sup>   to *C   (B <sup>V</sup> )   to			Ethanol Water Water in		
Ac   250 to Bc   tc_* Cc	2118.7 250.7	5 5 5	(A <sup>v</sup> )   °C c <sub>p</sub> liq. °K					
Cryos. A	<u>'</u>		c <sub>p</sub> vap. *K					
t <sub>e</sub> *C T <sub>R</sub> = 0.	233.38	5	-vP.	l	L	I	<u> </u>	
	CES: 1-Dow	2-AF	PI 3-130 A C	ale from de		grams/100 grants ta 5-Calc, by for		at
SOURCE:		AP		e.c. irom del	. a	in 3-Care, by for	u.a	
PURIFICA	TION:	AP						
LITERATU	RE REFERE							
L						· · · · · · · · · · · · · · · · · · ·		

No. 65

NAME	1,3-Dimet	hyl-2	-n-propylbenze	ne		STRUCTURAL FORMULA
	2-Propyl-	n-xy	lene			CH3 C3H7
Mole	Ref. Mo	lecul		Molecular		СНЗ
% Pur.		mul		Weight 148.23	8	
	-	Ref.			Ref.	Ref.
F.P. *C F.P. 100	4		dt/dP °C/mm			f to
B. P. *C	~	╁	25°C	40, 190	5	8 <u>°K</u>
760 mm	207.6	2	BP	0.0557	5	f' to
100 30	136.7 105.2	5	t <sub>e</sub> 30 mm	0.0364 0.7902	5	f' to to
10	81.1	5	ΔHm cal/g	0.1702	-	h'
1	41.	5	ΔHv cal/g		$\vdash$	m to
Pressure mm 25°C	0,3335	5	25°C	88.93	5	n   <u>*K</u>
t <sub>e</sub>	1306.	5	30 mm BP	80.97 68.92	5	<del></del>
Density g/ml 20°	0 0054		t <sub>e</sub>	66, 21	5	m' to
dt 25	0.8856 0.8817	2 2	te (d, e)	66.06	5	•'
4 30	0.8778	4	d 105 to	19.43	5	Surface tension
a b	0.9012 -0.0 <sub>3</sub> 78	4	235 <u>°C</u>	93.36	5	dynes/cm. 20°C 33.30 5 30 32.14 5
Ref. Inde		+-	d' 20 to e' 105 °C	91.41 0.0992	5	40 31.01 5
n <sub>D</sub> 20%	C 1.5063	2	d <sub>c</sub> g/ml	0.0992	5	Parachor [P]
25 30	1.5041 1.5015	2	II V_mi/g	3.72	5	20°C 30
"C"	0.7516	4	11 -	413.5	5	40
MR (Obs.	) 49.76	2	P <sub>c</sub> mm PV/RT	20509.	5	Sugd. 402.1 5 Exp. L.1.%/wt.
MR (Calc (nD-d/2)	.) 49.397 1.0635	5 2	25°C	1.0000	5	u.
Dielectric		5	30 mm BP	1.0000	5	Dispersion 166. 2
A 105 to		5	l t	0.9293	5	Flash Point *C Fire Point
B 1250 °C	C_1695.4	5	<sup>t</sup> c	0.245	5	M. Spec.
A* 105 to	199.	5	ΔHc kcal/m ΔHf		ì	Ultra V.
B* 240 °	2 1.53012 C 1598.5	5	ΔFf		ļ	X-Ray Dif. Infrared
K			Viscosity centistokes		1	Solubility in +
t <sub>k</sub>   -t			η •c		1	Acetone Carbon tet,
t <sub>x</sub>   • •		<u> </u>	ŀ			Benzene
A'  20 to B'  105	7.40154 C   1915.7	5		ļ	₩.	Ether n-Heptane
C'	218,2	5	B <sup>V</sup> to	ļ		Ethanol
A'* 20 to B'* 105 *		5	$\frac{\lambda}{(B^{V}) } - \frac{\lambda}{to}$	-		Water Water in
Ac  250 t	7.4908	5	(A <sup>V</sup> )  °C			
Bc tc	C 2112.7	5	c <sub>p</sub> liq. •K	† · · · · · ·	t	1
Cryos. A	- 251.1	+-	<del>{</del>		1	
consts. B			р .		1	
t <sub>e</sub> °C	231.91	5	c <sub>v</sub> vap.			
$T_{R} = 0.$						grams/100 grams solvent
	ICES: 1-Dow	2-A	PI 3-Lit. 4-	Calc. from de	et. de	ata 5-Calc. by formula
SOURCE:	TION		API			
PURIFICA	URE REFERE		API s.			.,
L.EKAI	ONE REFERE	E	J.			

No. 66 1,3-Dimethyl-4-n-propylbenzene STRUCTURAL FORMULA NAME 4-Propyl-m-xylene Molecular C11H16 CH3 Molecular Mole Ref. Weight 148,238 Č3H7 % Pur Ref Ref Rcf. dt/dP f to F.P. 100% °C/mm g °K. 25°C 38,437 B. P. °C h BP 0.0556 5 760 mm 206.6 2 ſ 5 100 0.0364 to 135.8 °K g' 30 5 30 mm 0.7885 104.4 5 10 80.3 5 h' AHm cal/g 1 40. 5 to m ΔHv cal/g Pressure n °K 25°C 88,67 mm 25°C 0.3497 o 30 mm 80.79 68.77 5 1304. t<sub>e</sub> 5 BP 5 to m Density g/ml 20°C te te (d, e) 66.05 5 •ĸ n' 0.8723 2 65.93 5 ۰,  $\mathbf{d_{4}^{t}}$ 25 0.8684 ΔHv/Te 19.43 5 30 0.8645 4 Surface tension 105 to 93.07 5 dynes/cm. 20°C 8 0.8879 31.34 5 <u>230 °C</u> • 0.1176 5 ь 30 -0.0378 4 ď٠ 5 30.24 20 to 91.15 40 29,16 5 Ref. Index e١ 105 0.0993 5 <sup>n</sup>D 20°C 1.4998 [P] Parachor d<sub>c</sub> g/ml 0.269 5 25 1.4976 20°C vc ml/g tc °C 3.72 30 1.4950 4 30 409.9 5 40 "C" 0.7539 4 Pç 5 Sugd. mm 20000. 402.1 5 MR (Obs.) 49.97 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 49.397 25°C 1,0000 (nD-d/2) 1.0637 2 30 mm 1,0000 166. 2 5 Dispersion Dielectric 5 BP 2.249 0.9475 5 Flash Point °C 0.9297 A 105 to t<sub>e</sub> 5 7,04689 5 Fire Point tc 0.245 5 B 1245 °C 1689.8 M Spec. С 199 AHc kcal/m Ultra V. ΛHf A\* | 105 to X-Ray Dif. 1.52717 ΔFf B\* | 240 °C 1593.1 Infrared Viscosity Viscos.., centistokes °C Solubility in Acetone to Carbon tet. •c Benzene A' | 20 to 7.39779 Ether B' 1105 °C 1909.4 n-Heptane B<sup>V</sup> | C 218.1 5 to Ethanol •c Water A'# 20 to 1.88289 5 Water in B'\* 105 °C (BV) 1808.2 5 to Ac | 245 to 7,4867 5 (A<sup>V</sup>)1 °C Bc tc\_C 2103.8 cp liq. ۰ĸ 250.5 Cryos. A. cp vap. °K consts. B° t<sub>e</sub> °C c, vap. 230.78 5  $T_{\mathbf{R}} = 0.76 \, T_{\mathbf{C}}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API **PURIFICATION:** API LITERATURE REFERENCES:

No. 67 1, 3-Dimethyl-5-n-propylbenzene STRUCTURAL FORMULA NAME **도**ዞ3 5-propyl-m-xylene Molecular Mole Ref. Molecular  $C_{11}H_{16}$ Weight 148.238 % Pur. Formula Ref Ref. Ref F.P. °C F.P. 100% -59.1 dt/dP °C/mm g ٠ĸ 25°C 31,671 5 B. P. °C h BP 0.0552 5 760 mm 202.24 2 ſ١ 0.0364 5 100 132.0 5 g' •<u>к</u> 30 5 30 mm 0.7815 5 100.8 10 77.0 5 h' AHm cal/g 1 37. m to ∆Hv cal/g ٠ĸ Pressure n 25°C 87.56 mm 25°C 0.4299 0 30 mm 80.00 5 1293. t<sub>e</sub> 5 BP 68.17 5 m' to Density te (d, e) 65.41 n' •ĸ g/m1 20°C 0.8607 2 5 65.42 ٥' 25  $\mathbf{d_{4}^{t}}$ 0.8568 2 ΔHv/T 19.43 5 30 0.8529 4 Surface tension d 100 91.76 5 0.8763 -0.0<sub>3</sub>78 44 dynes/cm. 20°C 29.71 1230 5 <u>•c</u> 0.1166 ь 30 28.65 ءَ آنهَ 20 آنه to 90.05 5 40 27.61 5 e' | 100 Ref. Index 0.0996 20°C 1.4952 2 [P]  $^{n}D$ Parachor d<sub>c</sub> g/ml 0.269 5 25 1.4930 20°C 2 vc ml/g tc °C 3.72 30 1.4904 4 30 401.8 5 40 "C" 0.7575 4 P<sub>c</sub> mm 19452. 5 Sugd. 402.1 5 MR (Obs.) 50.24 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 49.397 5 25°C 1.0000 (nD-d/2)1.0648 2 30 mm 1.0000 Dispersion 168. 2 5 Dielectric BP 2.236 5 0.9499 Flash Point C A 100 to 0.9311 7.03160 5 Fire Point 0,246 B 1240 °C 1665.5 5 M. Spec. С AHc kcal/m 199. Ultra V. A\* 100 to B\* 235 °C ΔHf 1.51448 5 X-Ray Dif. ΔFf 1569.5 Infrared ĸ Viscosity Solubility in centistokes Acetone to Carbon tet. °C t<sub>x</sub> | Benzene ΑΊ 20 to 7.38153 Ether B' 100 °C 1882,0 n-Heptane Bv | Av | 217.9 to Ethanol °c Water A1# 20 to 1.86948 (B<sup>V</sup>)I Water in B'\* 100 °C 1781.5 5 to (A<sup>V</sup>)| Ac| 240 to 7.4686 °C Bc tc C 2071.0 c liq. ۰ĸ Cc 249.5 Cryos. A° consts. B° ۰ĸ cp vap. c<sub>v</sub> vap. te C 225.87 5  $T_R = 0.76 T_c$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

No. 68 l, 4-Dimethyl-2-n-propylbenzene NAME STRUCTURAL FORMULA СНЗ 2-Propyl-p-xylene C<sub>3</sub>H<sub>7</sub> Molecular C11H16 Mole Ref. Molecular Weight 148,238 % Pur Ref. Ref Ref. F.P. C F.P. 100% dt/dP f to \*C/mm g •ĸ 25°C 34.680 5 B. P. \*C h ВP 0.0554 5 760 mm 204.3 2 0.0364 5 f to 100 133.8 5 g' •ĸ 30 102.5 5 30 mm 0.7848 5 10 78.6 5 h' AHm cal/g 1 38. 5 to m ΔHv cal/g Pressure •K n 25°C 88.08 5 mm 25°C 0.3902 0 30 mm 80.37 5 1298. 5 ŧ. BP 68.42 5 to m Density g/ml 20°C 65.74 te (d, e) 5 n' •K 0.8717 65.61 5 0 25  $\mathbf{d_4^t}$ 0.8678 ΔHv/Te 5 19.44 30 0.8639 Surface tension 92.41 100 to 5 0.8873 a b dynes/cm. 20°C 31.26 5 <u>.c</u> 230 0.1174 -0.0378 4 30 30.15 5 70 to to 90.57 40 29.08 5 •' Ref. Index 100 0.0995 1.4999 20°C 2 Parachor [P] n<sub>D</sub> d<sub>c</sub> g/ml 0.269 5 25 1.4977 2 20°C vc ml/g tc °C 3.72 5 30 1.4951 4 30 406.6 5 40 "C" 0.7546 4 P<sub>c</sub> mm 19909. 5 402.1 5 Sugd MR (Obs.) 50.03 2 PV/RT Exp. L.1. %/wt. 49.397 MR (Calc.) 25°C 1.0000 5 (nD-d/2) 1.0640 2 30 mm 1.0000 5 Dispersion 168. 2 Dielectric 2.250 5 BP 0.9481 5 Flash Point °C 0.9307 5 100 to 7.03881 Fire Point 1676.9 0,246 ŧ, B 245 °C M Spec. Ultra V. c 199. AHc kcal/m ΔHf A\* | 100 to 1.51999 5 X-Ray Dif. **AFf** B+ 235 °C 1580.4 Infrared ĸ Viscosity Solubility in centistokes Acetone to Carbon tet. •c Benzene A' 20 to 7.38920 Ether 1894.8 B' L100 °C n-Heptane Вv C١ 218.0 Ethanol Ã۷ •c Water A1# 20 to 1.87581 5 Water in B'\* 100 °C (BV) 1794.0 to Ac | 245 to 7.4776 (A<sup>V</sup>)1 5 °C Bc tc\_C 2087.7 cp liq. ۰ĸ Cc 250.2 Cryos. A c<sub>p</sub> vap. •ĸ consts. B° c<sub>v</sub> vap. f .C 228,19 5  $T_R = 0.76 T_C$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

TABLE I. ALKYL AND HALO BENZENES

							No. 69
NAME	1,2-Dimet	hyl - 3	-isopropylbenz	ene		STRUCTURAL	FORMULA
	2, 3-Dimet	hylcu	ımene			CH <sub>3</sub> CH <sub>3</sub>	
Mole % Pur.		lecul mula		Molecular Veight 148.23	8	<b>П</b> СН (СН	3)2
	<u> </u>	Ref.			Ref.		Ref
F.P. °C F.P. 100%			dt/dP *C/mm			f to	
B.P. °C 760 mm 100 30 10	202.6 132.3 101.1 77.3	2 5 5 5 5	25°C BP te 30 mm  AHm cal/g	32.180 0.0553 0.0364 0.7821	5 5 5	g   <u>*K</u> h   g'   <u>*K</u> h'	
Pressure mm 25°C t <sub>e</sub> Density	0.4226 1294.	5	ΔHv cal/g 25°C 30 mm BP	87.65 80.07 68.07	5 5 5	m   to o o o o o o o o o o o o o o o o o	
g/ml 20°C dt 25 d4 30	0.884 0.880	2 2 4	t <sub>e</sub> (d, e) ΔHv/T <sub>e</sub> d 100 to	65.49 65.28 19.44	5	n' K o' Surface tension	
a b Ref. Index	0.904 -0.0 <sub>3</sub> 8	4	-e - 230 °C	92.02 0.1182 90.14	5 5	dynes/cm, 20°C 30 40	33.66 5 32.46 5 31.30 5
n <sub>D</sub> 20°C		2 2 4	e'   100 °C d <sub>c</sub> g/ml v <sub>c</sub> ml/g t <sub>c</sub> °C	0.0996 0.269 3.72 406.3	5 5 5 5	Parachor [P] 20°C 30 40	
"C"	0.7519	4	P <sub>c</sub> mm	20296.	5		402.1 5
MR (Obs.) MR (Calc. (nD-d/2) Dielectric	1 49.397 1.064	2 5 2	PV/RT 25°C 30 mm BP	1.0000	5	Exp. L.1.%/wt. u. Dispersion	166. 2
A 100 to B 245 °C	7.03286 1667.5	5 5 5	t e t c	0.9474 0.9310 0.245	5 5 5	Flash Point *C Fire Point  M. Spec.	
A* 100 to B* 235 °C		5 5 5	ΔHc kcal/m ΔHf ΔFf			Ultra V. X-Ray Dif. Infrared	
t <sub>k</sub>	:		Viscosity centistokes 7 °C			Solubility in + Acetone Carbon tet. Benzene	
A'   20 to B'   100 °C C'	1884.2	5 5	B <sup>V</sup> to			Ether n-Heptane Ethanol Water	
A'* 20 to B'* 100 °C Ac  245 to	1783.7	5 5	(B <sup>V</sup> )  to	·		Water in	
Bc tc C	2076.8	5	c <sub>p</sub> liq. *K				
Cryos. A consts. B c		5	c <sub>p</sub> vap. *K c <sub>p</sub> vap.				
T <sub>R</sub> =-0.		1 3	Ш	1	<b>L</b>	grams/100 gra	ms solvent
		2-A	PI 3-Lit. 4-	Calc. from de	t. da	ta 5-Calc. by for	mula
SOURCE:			API				
PURIFICA	<del></del>		API				
LITERATU	KE REFERE	NCE	S;				

No. 70 1, 2-Dimethyl-4-isopropylbenzene STRUCTURAL FORMULA NAME ÇH3 3.4-Dimethylcumene CH<sub>3</sub> Ref. Molecular Molecular Mole  $C_{11}H_{16}$ Formula Weight 148,238 H(CH3)2 Ref. Ref. dt/dP f to F.P. 100% \*C/mm 25\*C g <u>•</u>K 31.044 5 B. P. \*C h BP 0.0552 5 760 mm 201.8 2 t<sub>e</sub> 0.0364 5 f' to 100 131.6 5 g' ۰ĸ 100.5 5 30 30 mm 0.7807 5 5 10 76.7 h' ∆Hm cal/g 37. 5 to ΔHv cal/g m Pressure °K 25°C n 87.44 5 mm 25°C 0.4391 a 30 mm 79.92 5 t<sub>e</sub> 1292. BP 68.00 5 m' ١ to Density te (d, e) 65.38 5 n' •ĸ g/ml 20°C 0.8699 2 65.23 5 01 25 0.8660 2  $\mathbf{d_{4}^{t}}$ AHV/Te 5 19.44 30 0.8621 4 Surface tension d T 100 91.74 5 0.8855 -0.0378 dynes/cm. 20°C 31.00 5 <u>.</u> \*C 0.1176 5 ь 225 30 29.90 5 to 89.94 20 1 40 28.83 5 Ref. Index •' •c 100 0.0997 5 1.4993 20°C [P]  $\mathbf{n}_{\mathbf{D}}$ Parachor d<sub>c</sub> g/ml 0.269 5 25 1.4971 v ml/g 20°C 5 3.72 1.4945 4 30 30 402.8 5 40 "C" 0.7553 4 5 P<sub>c</sub> mm 19765. Sugd. 402.1 5 MR (Obs.) 50.06 2 PV/RT Exp. L.1.%/wt. MR (Calc.) (nD-d/2) 49.397 25°C 1,0000 5 1.0644 2 u. 30 mm 1.0000 5 Dispersion 167. 2 Dielectric 2,248 5 RP 0.9484 5 Flash Point °C t<sub>e</sub> 0.9315 5 A 100 to 7,03006 Fire Point t<sub>c</sub> 0.246 1663. \_240 °C M Spec. 199. 5 C AHc kcal/m Ultra V. ΔHf A\* | 100 to 1.51274 5 X-Ray Dif. ΔFf B+ 235 °C 1566.9 Infrared ĸ Viscosity Solubility in c centistokes Acetone to t<sub>x</sub> | Carbon tet. •c Benzene 7.37990 1879.1 20 to Ether B١ <u>100 °C</u> n-Heptane c٠ 217.9 5 вv Ethanol ÃV I •c Water A1# 20 to 1.86814 5 Water in B'# 100 °C (BV) 1778.8 5 to Ac | 240 to 7,4665 5 (A<sup>V</sup>) °C 2068.8 Bc tc\_C liq. Сp ۰ĸ Cc 249.7 Cryos. A. c<sub>p</sub> vap. ۰ĸ consts. B° c<sub>v</sub> vap. te .C 225.37 5  $T_{\mathbf{R}} = 0.76 \, T_{\mathbf{c}}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE API PURIFICATION: API LITERATURE REFERENCES:

TABLE I. ALKYL AND HALO BENZENES

199. 129. 2 98. 2 75. 35. 0. 5010 1285. 0. 890 0. 886 0. 882 0. 906 -0. 038 1. 509 1. 507 1. 504 0. 7516 49. 7	2 2 5 5 5 5 5 5 2 2 2 4 4 4 4 2 2 5 5 5 5	ar C <sub>11</sub> H <sub>16</sub> dt/dP	27.435 0.0549 0.0364 0.7762 86.73 79.41 67.51 64.99 64.77 19.45 91.01 0.1181 89.23 0.0999 0.269 3.72 401.6 20251.	Ref. 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	f g   _ h   f'   g'   _ h'   m   n   n   o   _ o   _ o   _ o   Surface to dynes/cm g		33. 97 32. 76	Ref.
199. 129. 2 98. 2 75. 35. 0. 5010 1285. 0. 890 0. 886 0. 882 0. 906 -0. 038 1. 509 1. 507 1. 504 0. 7516 49. 7	2 2 5 5 5 5 5 2 2 4 4 4 4 4 2 2 5 5 5 5	dt/dP	27.435 0.0549 0.0364 0.7762 86.73 79.41 67.51 64.99 64.77 19.45 91.01 0.1181 89.23 0.0999 0.269 3.72 401.6	Ref. 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	g  h	to°K  to°K  to _*K  to _*K		
199. 129. 2 98. 2 75. 35. 0. 5010 1285. 0. 890 0. 886 0. 882 0. 906 -0. 038 1. 509 1. 507 1. 504 0. 7516 49. 7	2 2 5 5 5 5 5 2 2 4 4 4 4 4 2 2 5 5 5 5	dt/dP	27.435 0.0549 0.0364 0.7762 86.73 79.41 67.51 64.99 64.77 19.45 91.01 0.1181 89.23 0.0999 0.269 3.72 401.6	Ref. 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	g  h	to *K  to *K  to *K  to *K  to *C		
129. 2 98. 2 75. 35. 0.5010 1285. 0.890 0.886 0.882 0.906 -0.038 1.509 1.507 1.504 0.7516	2 5 5 5 5 5 5 5 5 2 2 4 4 4 4 2 5	*C/mm 255°C BP  te 30 mm  AHm cal/g  AHv cal/g 25°C 30 mm BP  te (d, e) AHv/Te  d   100 to e   225 °C d'   20 to e'   100 °C  d g/ml v_c ml/g t_c °C P_c mm	0.0549 0.0364 0.7762 86.73 79.41 67.51 64.99 64.77 19.45 91.01 0.1181 89.23 0.0999 0.269 3.72 401.6	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	g  h	to *K  to *K  to *K  to *K  to *C		
129. 2 98. 2 75. 35. 0.5010 1285. 0.890 0.886 0.882 0.906 -0.038 1.509 1.507 1.504 0.7516	5 5 5 5 5 2 2 4 4 4 4 2 2 4	*C/mm 255°C BP  te 30 mm  AHm cal/g  AHv cal/g 25°C 30 mm BP  te (d, e) AHv/Te  d   100 to e   225 °C d'   20 to e'   100 °C  d g/ml v_c ml/g t_c °C P_c mm	0.0549 0.0364 0.7762 86.73 79.41 67.51 64.99 64.77 19.45 91.01 0.1181 89.23 0.0999 0.269 3.72 401.6	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	g  h	to *K  to *K  to *K  to *K  to *C		
129. 2 98. 2 75. 35. 0.5010 1285. 0.890 0.886 0.882 0.906 -0.038 1.509 1.507 1.504 0.7516	5 5 5 5 5 2 2 4 4 4 4 2 2 4	BP te 30 mm  AHm cal/g  AHv cal/g 25°C 30 mm  BP te (d, e) AHv/Te  d   100 to e   225 °C d'   20 to e'   100 °C  d g/ml vc ml/g tc °C Pc mm	0.0549 0.0364 0.7762 86.73 79.41 67.51 64.99 64.77 19.45 91.01 0.1181 89.23 0.0999 0.269 3.72 401.6	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	f' g' h' h' h' h' h' h' h' h' h' h' h' h' h'	to  *K  to  *K  to  *K  consion 20°C		
129. 2 98. 2 75. 35. 0.5010 1285. 0.890 0.886 0.882 0.906 -0.038 1.509 1.507 1.504 0.7516	5 5 5 5 5 2 2 4 4 4 4 2 2 4	t <sub>e</sub> 30 mm  AHm cal/g  AHv cal/g  25°C 30 mm  BP  te (d, e)  AHv/Te  d   100 to e   225 °C  d'   20 to e'   100 °C  d_g/ml v_c ml/g t_c °C  P_c mm	86.73 79.41 67.51 64.99 64.77 19.45 91.01 0.1181 89.23 0.0999 0.269 3.72 401.6	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	g' h' h' m l o m' l o o' Surface te dynes/cm	to  *K  to  *K  to  *K  consion 20°C		
98. 2 75. 35. 0. 5010 1285. 0. 890 0. 886 0. 882 0. 906 -0. 038 1. 509 1. 507 1. 504 0. 7516	5 5 5 5 2 2 4 4 4 4 2 2 4	30 mm  AHm cal/g  AHv cal/g  25°C  30 mm  BP  te te (d,e) AHv/Te  d   100 to e   225 °C  d'   20 to e'   100 °C  dc g/ml vc ml/g tc °C  Pc mm	86.73 79.41 67.51 64.99 64.77 19.45 91.01 0.1181 89.23 0.0999 0.269 3.72 401.6	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	m n n n n n n n n n n n n n n n n n n n	to  *K  to  *K  ension 20°C		
35. 0.5010 1285. 0.890 0.886 0.882 0.906 -0.038 1.509 1.507 1.504 0.7516 49.7	5 5 5 2 2 4 4 4 4 2 2 4	∆Hv cal/g 25°C 30 mm BP t <sub>e</sub> (d, e) △Hv/T <sub>e</sub> d   100 to e   225 °C d'   20 to e'   100 °C d <sub>c</sub> g/ml v <sub>c</sub> ml/g t <sub>c</sub> °C P <sub>c</sub> mm	79.41 67.51 64.99 64.77 19.45 91.01 0.1181 89.23 0.0999 0.269 3.72 401.6	5 5 5 5 5 5 5 5	m   n   n   n   n   n   n   n   n   n	to °K  to °K  ension 20°C		-
0.5010 1285. 0.890 0.886 0.882 0.906 -0.038 1.509 1.507 1.504 0.7516	5 5 2 2 4 4 4 4 2 2 4 4 2 5	25°C 30 mm BP  te (d, e)	79.41 67.51 64.99 64.77 19.45 91.01 0.1181 89.23 0.0999 0.269 3.72 401.6	5 5 5 5 5 5 5 5	m'   n'   o'   Surface to dynes/cm	to °K  to °K  ension 20°C		-
0.890 0.886 0.882 0.906 -0.038 1.509 1.507 1.504 0.7516	5 2 2 4 4 4 2 2 4 4 2 5	30 mm BP  te (d, e)  ΔHv/Te  d   100 to e   225 °C  d'   20 to e'   100 °C  d_g/ml v_c ml/g t_c °C  P_c mm	79.41 67.51 64.99 64.77 19.45 91.01 0.1181 89.23 0.0999 0.269 3.72 401.6	5 5 5 5 5 5 5 5	m'   n'   o'   Surface to dynes/cm	to *K ension . 20°C		
0.890 0.886 0.882 0.906 -0.038 1.509 1.507 1.504 0.7516	2 2 4 4 4 2 2 4 4 4	BP te te(d,e) ΔHv/Te d   100 to e   225 °C d'   20 to e'   100 °C d g/ml v ml/g t °C P mm	67.51 64.99 64.77 19.45 91.01 0.1181 89.23 0.0999 0.269 3.72 401.6	5 5 5 5 5 5 5 5	Surface to	ension		
0.886 0.882 0.906 -0.038 1.509 1.507 1.504 0.7516	2 4 4 4 2 2 4 4 2 5	t <sub>e</sub> (d, e) ΔHv/T <sub>e</sub> d   100 to e   225 °C d   20 to e'   100 °C  d g/ml v <sub>c</sub> ml/g t <sub>c</sub> °C  P <sub>c</sub> mm	64.77 19.45 91.01 0.1181 89.23 0.0999 0.269 3.72 401.6	5 5 5 5 5 5	Surface to	ension		-
0.886 0.882 0.906 -0.038 1.509 1.507 1.504 0.7516	2 4 4 4 2 2 4 4 2 5	ΔHv/T <sub>e</sub> d 100 to e 225 °C d 20 to e' 100 °C  d g/ml v <sub>c</sub> ml/g t <sub>c</sub> °C  P <sub>c</sub> mm	19.45 91.01 0.1181 89.23 0.0999 0.269 3.72 401.6	5 5 5 5 5	Surface to dynes/cm	ension		-
0.882 0.906 -0.038 1.509 1.507 1.504 0.7516	4 4 4 2 2 4 4 2 5	d 100 to e 225 °C d 20 to e' 100 °C d g/ml v ml/g t °C P mm	91.01 0.1181 89.23 0.0999 0.269 3.72 401.6	5 5 5 5	dynes/cm	. 20°C		<u> </u>
-0. 0 <sub>3</sub> 8 1. 509 1. 507 1. 504 0. 7516 49. 7	2 2 4 4 2 5	e   225 °C d'   20 to e'   100 °C  d g/ml vc ml/g t c °C  Pc mm	0.1181 89.23 0.0999 0.269 3.72 401.6	5 5 5	dynes/cm	. 20°C		-
1.509 1.507 1.504 0.7516	2 2 4 4 2 5	d' 20 to e' 100 °C d <sub>c</sub> g/ml v <sub>c</sub> ml/g t <sub>c</sub> °C P <sub>c</sub> mm	89.23 0.0999 0.269 3.72 401.6	5 5 5	Parachor	30	32 76	5
1.507 1.504 0.7516 49.7	2 4 4 2 5	d <sub>c</sub> g/ml v <sub>c</sub> ml/g t <sub>c</sub> °C P <sub>c</sub> mm	0.269 3.72 401.6	5	Parachor	40		5
1.507 1.504 0.7516 49.7	2 4 4 2 5	t <sub>c</sub> °C	3.72 401.6	5	Paracnor	40 (D)	31.59	5
0.7516 49.7	2 5	P <sub>c</sub> mm	401.6			20°C		
49.7	2 5	P <sub>c</sub> mm	1	5		30		
	5			5		40 Sugd.	402.1	5
		PV/RT		+	Exp. L.1.	<b>_</b> _		+-
49.397 1.064	12	25°C	1.0000	5	ū.			İ
2,277	5	30 mm BP	1.0000 0.9483	5	Dispersio		165.	2
7,02030	5	t	0.9324	5	Flash Poi			
1647.5	5	t <sub>c</sub>	0.246	5	M. Spec.			+
199.	5	ΔHc kcal/m ΔHf			Ultra V.			
1.50470	5	ΔFf		1 1	X-Ray Di	ſ.		1
1551.9	5	Viscosity			Infrared	· +		+
	1 1	centistokes	l		Solubility Acetone	ın		
	1 1	η °C			Carbon			1
7, 36952	5				Benzene Ether			
1861.6	5	B <sub>v</sub> to		+	n-Hepta	ne		
217.7	5	B to		1	Ethanol Water			
1.85960 1761.8	5 5	(BV) - 10			Water in	١		
7,4588	5	(A <sup>V</sup> )  °C						Ī
2054.6	5			+				İ
250.2	5	p ·		1 1			1	
		c <sub>p</sub> vap. *K						
222 21	+_	c, vap.						
Cc	1	11	L	لــــــــــــــــــــــــــــــــــــــ	+ arame/	100 072	ms solve	<del>_</del>
	2 - A	PI 3-Lit 4-	Calc from d	et da				
			0410. 110111 0		3-01.0	,		
ON:	, INC Est	<b>5</b> :						
ON:								
ON:								
ON:								
۲,	: 1-Dow	: 1-Dow 2-A A N: A	: 1-Dow 2-API 3-Lit, 4-	: 1-Dow 2-API 3-Lit. 4-Calc. from d API N: API	: 1-Dow 2-API 3-Lit. 4-Calc. from det. da API N: API	grams/ : 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc API N: API	grams/100 gra : 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by for API N: API	grams/100 grams solve: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula  API  N: API

No.

72

NAME 1, 3-Dimethyl-4-isopropylbenzene STRUCTURAL FORMULA СНЗ 2, 4-Dimethylcumene Ref. Molecular Molecular СНЗ Mole  $C_{11}H_{16}$ Weight 148.238 % Pur Formula H(CH3)2 Ref. Ref. Ref. F.P. C F.P. 100% dt/dP to °C/mm <u>•</u>K g 25°C B. P. °C 27.568 5 h BP 0.0549 5 760 mm 199.1 2 ſ 0.0364 5 to 100 129.3 5 g' °K 30 30 mm 98.3 5 0.7764 10 5 75. h' ΔHm cal/g 35. 5 to ΔHv cal/g m Pressure •ĸ 25°C 86.76 5 mm 25°C 0.4984 0 30 mm 79.43 5 te 1285. 5 BP 67.57 5 Density to m te (d, e) 64.98 5 g/ml 20°C •K n' 0.873 64.84 5 2 ď, 0.869 2 AHV/Te 19.44 5 30 0.865 4 Surface tension d Т 100 91.00 5 to 0.889 4 dynes/cm. 20°C 31.44 e 225 20 <u>•с</u> 0.1177 5 ь -0.038 30 ď٠ 30.31 5 89.26 40 Ref. Index 29.20 5 0.0999 e¹ 100 20°C 1.500 2 [P]  $\mathbf{n}_{\mathbf{D}}$ Parachor 0.269 d<sub>c</sub> g/ml 5 25 1.498 2 20°C ml/g 5 Yc. 30 1.495 4 30  $\mathbf{t_c}$ •c 398.9 5 40 "C" 0.7536 4 Pc 19659. 5 mm Sugd. 402.1 5 MR (Obs.) 49.9 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 49.397 25°C 1.0000 5 (nD-d/2) 1.064 2 u. 30 mm 1.0000 Dispersion 166. 2 Dielectric 2.250 5 BP 0.9490 Flash Point °C 100 to 0.9321 te 7.02065 5 Fire Point tc 0.245 5 L240 °C 1648.1 M Spec. 199. 5 AHc kcal/m Ultra V. ΔHf A\* | 100 to 1.50536 5 X-Ray Dif. ΔFf B+ 235 °C 1552.6 Infrared ĸ Viscosity Solubility in centistokes Acetone t | to Carbon tet. •c Benzene 7.36989 A' 20 to 5 Ether B' 1100 °C 1862.3 n-Heptane В<sup>v</sup> 5 217.7 Ethanol to ΑV •c A'\* 20 to Water 1.85990 5 Water in B'# 100 °C 1762.4 (BV) 5 to Ac | 240 to 7.4587 5 (AV) °C Bc tc\_C 2052.8 cp liq. ۰ĸ Cc 249.7 Cryos. A\* cp vap. •K consts. B° c, vap. te °C 222.33 5  $T_{\mathbf{R}} = 0.76 \, T_{\mathbf{c}}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula API SOURCE: PURIFICATION: API LITERATURE REFERENCES:

TABLE I. ALKYL AND HALO BENZENES

,							No. 73	
NAME			5-isopropylben	zene		STRUCTURAL	FORMULA	
	3, 5-Dime	thylo	umene			CH3 CH3		
Mole % Pur.		ecul.	C <sub>11</sub> H <sub>16</sub>	Molecular Weight 148.2	38	(сн <sub>3</sub> ) <sub>2</sub> нс	3	
	<del></del>	Ref.			Ref.		R	eſ.
F. P. *C			dt/dP			f to		
F.P. 100% B.P. °C			*C/mm 25*C	23.041	5	g '° <u>K</u>		
760 mm	194.5	2	BP	0.0543	5	f to		_
100 30	125.5 94.9	5	t <sub>e</sub> 30 mm	0.7674	5	g' <u>*K</u>		
10	71.5	5	ΔHm cal/g	1	1	h'	1_	
<u>1</u>	32.	5	ΔHv cal/g		$\Box$	m to		
Pressure mm 25°C	0.6023	5	25°C	85.90	5	n		
te	1276.	5	30 mm BP	78.88	5	m' to		_
Density g/ml 20°C	0.843	,	t <sub>e</sub> (d, e)	64.69	5	n'  •K		
at 25	0.862 0.858	2	ΔHv/T <sub>e</sub>	64,53	5	0'		
	0.854	4	d 95 to	19.56 90.00	5	Surface tension		_
a b	0.878	4 4		0,1173	5	dynes/cm. 20°C		5
Ref. Index		H	d'   20 to	88.41 0.1006	5	40		5
<sup>n</sup> D 20°C	1.495	2	d g/ml	0,269	5	Parachor [P]		
30	1.493 1.490	2 4	vc ml/g tc °C	3,72	5	20°C		
"C"	0.7560	4		390.7 19373.	5	40 Sugd.	402 1	5
MR (Obs.)	50.2	2	P <sub>c</sub> mm	17373.	-	Exp. L.1.%/wt.	402.1	
MR (Calc.) (nD-d/2)	49.397 1.064	5 2	25°C	1.0000	5	u.		_
Dielectric	2,235	5	30 mm BP	1.0000 0.9513	5	•	168.	2
A 95 to	7.02030	5	t <sub>e</sub>	0.9356 0.246	5	Flash Point *C Fire Point	ļ	
B   230 ℃ C	1628.9 199.	5	tc ΔHc kcal/m	0,240	-	M. Spec.		_
A* 95 to	1,50482	5	ΔHf			Ultra V. X-Ray Dif.		
B*  225 °C	1533.2	5	ΔFf	<del> </del>	-	Infrared		
K — — —		]	Viscosity centistokes			Solubility in +		
t <sub>k</sub> to			η <b>•</b> c			Acetone Carbon tet.		
A'  20 to	7, 36952	5				Benzene Ether		
B' _ 95 °C	1840.6	5	- <u>-</u> -		-	n-Heptane		
C1	217.5	5	B <sup>V</sup> to A <sup>V</sup> •C	1	1	Ethanol Water		
A'* 20 to B'* 95 °C	1.86233 1741.5	5	(B <sup>V</sup> )  to	-	1	Water in		
Ac  230 to	7.4568	5	(A <sup>V</sup> )  °C	L				
Bc tc C	2026.3 248.6	5	c <sub>p</sub> liq. *K					
Cryos. A*	1	Ť	c <sub>p</sub> vap. *K					
consts. B		ļ	c vap.		1			
t <sub>e</sub> °C	217.14	5		L	Ц_	+ (100		
TR = 0.76	ES: 1-Dow	2 - 4	PI 3-Lit. 4-	Calc, from de	+ 4-	grams/100 grants 5-Calc. by for		
SOURCE:	20, 1-DOW		PI 3-Lit. 4-	Care, from d	48	J-Care, by for		
PURIFICAT	ION:		PI					_
	RE REFERE							_
<u> </u>								

							No. 7	74
NAME	l,4-Dime	thyl-	2-isopropylbena	ene		STRUCTURAL F	ORMULA	4
	2, 5 - Dime	thylo	umene			CH3 CH(CH	3)2	
						1. 1		
Mole % Pur.	Ref. Mo	lecul rmul		Molecular Weight 148.23	38	CH <sub>3</sub>		
7	<u> </u>	Ref.	T		Ref			Ref.
F. P. *C	T		dt/dP	I		f   to		1
F.P. 1007			*C/mm		_	8 <u>*K</u> _		
B. P. *C	10/ 3		25°C BP	24.264 0.0547	5 5	h		
760 mm 100	196.2 126.7	2 5	t <sub>e</sub>	0.0364	5	f' to		
30	96.0	5	30 mm	0.7716	5	g'   ' <u>*</u> K_		
10 1	72. 33.	5	ΔHm cal/g			h'		-
Pressure			ΔHv cal/g	94 03	5	m to		
mm 25°C	0.5711 1278.	5	25°C 30 mm	86.02 78.91	5	•		
Te Density	12.0.	-	BP	67.14	5	m'   to		
g/ml 20°0		2	t <sub>e</sub> (d, e)	64.58 64.45	5	n'  •K_]		
dt 25 4 30	0.8699 0.8660	2	ΔHv/T	19.45	5	0'		<u> </u>
4 30	0.8894	4	d   95 to	90.18	5	Surface tension dynes/cm. 20°C	21 54	5
ь	-0.0378	4	d'   220 to	0, 1175 88, 52	5	<b>y</b> 30	31.56 30.45	5
Ref. Index			e'   20 to	0,1002	5	40	29.36	5
<sup>n</sup> D 20°C	1.5010	2	d g/ml vc ml/g	0.269	5	Parachor [P] 20°C		
30	1,4963	4	vc ml/g tc °C	3.72 395.6	5	30		
"C"	0.7543	4	P <sub>c</sub> mm	19721.	5	40 Sugd.	402.1	5
MR (Obs.) MR (Calc.		2	PV/RT		$\vdash$	Exp. L.1.%/wt.		+-
(nD-d/2)	1.0641	2	25°C	1.0000	5	u.		
Dielectric	2.253	5	30 mm BP	1.0000	5	Dispersion	168.	2
A 95 t		5	te	0.9332 0.246	5	Flash Point °C Fire Point		1
B [235 °	2 1632.1 199.	5	t <sub>c</sub> ΔHc kcal/m	0.240	-	M Spec.		<b>†</b>
A*  95 to		5	ΔHf			Ultra V. X-Ray Dif.		
B* 230 °C		5	ΔFf		_	Infrared		
K		ļ	Viscosity centistokes			Solubility in +		
t <sub>k</sub>  t		İ	7 °c			Acetone Carbon tet.		
t   '0 to		5		ŀ	١.,	Benzene		
B1 95 ℃	2 1844.2	5			_	Ether n-Heptane		1
C'	217.6	5	B <sup>V</sup>   to A <sup>V</sup>   *C			Ethanol		
A'* 20 to B'* 95 *		5				Water Water in		
Ac   235 to	<del></del>	5						Т
Bc tc	2034.2	5	<u> </u>		<del> </del>	1		
Cc	249.5	5	F					
Cryos. A' consts. B'			c <sub>p</sub> vap. *K					
t <sub>e</sub> °C	219.06	5	c <sub>v</sub> vap.					
$T_{\mathbf{R}} = 0.$						grams/100 gran	ns solven	t
REFEREN	CES: 1-Dow			alc. from de	t. da	ta 5-Calc, by form	nula	
SOURCE:	<del></del>		API					
PURIFICA			<b>AP</b> I					
LITERATI	IRE REFERE	NCES	5:					

TABLE I. ALKYL AND HALO BENZENES

No. 75 2, 3-Diethyl-1-methylbenzene NAME STRUCTURAL FORMULA 2, 3-Diethyltoluene C<sub>2</sub>H<sub>5</sub> Ref. Molecular Molecular Weight 148.238 C<sub>2</sub>H<sub>5</sub> Mole C11H16 % Pur. Formula Ref Ref. F.P. °C F.P. 100% dt/dP ſ to °C/mm 25°C ١ •ĸ g 38.437 5 B. P. °C h BP 0.0556 5 760 mm 206.6 2 0.0364 5 t<sub>e</sub> to 100 5 135.8 g' <u>•к</u> 30 5 0.7885 5 104.4 30 mm 10 80. h' ∆Hm cal/g 40. m to 1 ΔHv cal/g Pressure n •ĸ 25°C ١ 88.67 mm 25°C 0.3497 30 mm 80.79 1304. te 5 BP 68.78 5 mi to Density 66.07 5 te (d, e) n' <u>•K</u> g/ml 20°C 0.8910 65.94 5 ٥' 25 0.8871  $d_4^t$ AHv/Te 19.43 5 30 0.8832 4 Surface tension 105 to 93.06 5 0.9066 -0.0<sub>3</sub>78 dynes/cm. 20°C a b 230 °C 20 to 34.12 0.1175 5 4 ᇷ 30 32.94 91.15 5 40 5 31.79 e¹ Ref. Index •c 105 0.0993 5 20°C [P] <sup>n</sup>D 1.5105 Parachor d<sub>c</sub> g/ml 5 0.269 25 1.5083 2 20°C 3.72 vc ml/g 30 1.5057 4 30 413.0 5 40 "C" 0.7528 4  $P_c$  mm 5 20668. 5 402.1 Sugd. MR (Obs.) 49,80 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 49.397 25°C 1.0000 (nD-d/2)1.0650 2 1.0000 30 mm Dispersion 166. 2 Dielectric 2,282 5 BP 0.9475 5 Flash Point C te tc 0.9297 5 A 105 to 7.04689 5 Fire Point 0.245 5 1689.8 B 1\_250 °C M. Spec. C 199. 5 ∆Hc kcal/m Ultra V. ΔHf A\* 105 to 1.52717 X-Ray Dif. ΔFf B\*| 240 °C 1593.1 Infrared ĸ Viscosity Solubility in centistokes Acetone to t<sub>k</sub> | Carbon tet. °C  $t_{x \mid }$ Benzene A'I 20 to 7.39779 5 Ether B' 1 105 °C 1909.4 5 n-Heptane Bv | 218.1 Ethanol to A °C Water A1# 20 to 1.88289 5 Water in B'\* 105 °C 1808.2 (B<sup>V</sup>) to 5 Ac 250 to (A V) 7,4868 5 °C Bc tc C 2106.3 cp liq. ۰ĸ Сc 251.1 Cryos. Aº cp vap. ۰ĸ consts. B° c vap. te °C 230,78  $T_{\mathbf{R}} = 0.76 \, T_{\mathbf{c}}$ grams/100 grams solvent 5-Calc. by formula REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data SOURCE: API API PURIFICATION: LITERATURE REFERENCES:

No. 76 NAME 2, 4-Diethyl-1-methylbenzene STRUCTURAL FORMULA 2, 4-Diethyltoluene C<sub>2</sub>H<sub>5</sub> Molecular C11H16 Mole Ref. Molecular % Pur Weight 148, 238 Ref Ref. Ref F.P. °C F.P. 100% dt/dP to °C/mm <u>•ĸ</u> g 25°C 35.774 ٠5 B. P. °C h BP 0.0555 205.0 760 mm 2 0.0364 5 ſ١ 100 134.4 5 g' ۰ĸ 30 103.1 5 0.7859 5 30 mm 79. 10 5 h' ∆Hm cal/g 39. to ΔHv cal/g m Pressure •ĸ 25°C 88.26 5 mm 25°C 0.3775 30 mm 80.50 1300. 5 t<sub>e</sub> 68.46 5 ВP Density m to 65.84 5 t t (d, e) •ĸ g/ml 20°C 0.8748 5 n' 2 65.63 0.8709 dt4 25 2 AHV/Te 19.44 5 30 0.8670 4 Surface tension 1 105 92.67 0.1181 5 to \*C 0.8904 -0.0<sub>3</sub>78 8 4 dynes/cm. 20°C 31.71 30.59 230 å. Ъ 30 5 -2σ 90.75 5 40 5 29.50 Ref. Index 0.0994 105 5 1.5027  $\mathbf{n}_{\mathbf{D}}$ 20°C [P] Parachor d<sub>c</sub> g/ml 0.269 5 1.5005 2 25 20°C ml/g 3.72 5 30 1.4979 4 c 30 •c 408.1 5 ŧċ "C" 0.7558 4 40 Pç 20042. 5 5 402.1 mm Sugd MR (Obs.) 50,07 2 PV/RT Exp. L.1. %/wt. MR (Calc.) 49.397 1.0000 25°C 5 1.0653 (nD-d/2) 2 30 mm 1.0000 Dispersion 168. 2 2,258 5 Dielectric ВP 0.9471 Flash Point °C 0.9305 100 to 7,04127 5 Fire Point t<sub>c</sub> 0.245 1680.8 B 245 °C M Spec. 199. 5 AHc kcal/m Ultra V ΔHf A\* | 100 to 1.52201 5 X-Ray Dif. ΔFf B+ 240 °C 1584.2 Infrared ĸ Viscosity Viscoss, centistokes \*C Solubility in Acetone t<sub>x</sub> | to Carbon tet. ٠c Benzene A' 20 to 7.39181 1899.3 Ether B' [100 °C n-Heptane B<sup>V</sup> A<sup>V</sup> C' 218.0 Ethanol to •c Water A1# 20 1.87797 (BV) Water in B'\* 100 °C 1798.3 to Ac | 245 to 7.48035 (AV) °C 2092.9 Bc \_tc\_ •c cp liq. °K Cc 250.4 Cryos. A° consts. B° c<sub>p</sub> vap. •ĸ te °C c, vap. 228.98  $T_R = 0.76 T_c$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det. data 5-Calc, by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

TABLE I. ALKYL AND HALO BENZENES

							No. 77	
NAME	2,5-Diethy	-  -r	nethylbenzene			STRUCTURAL	FORMULA	Λ
	2,5-Diethy	ltolu	e ne			C2H5		
Mole % Pur.	Ref. Moi For	ecul mul		Molecular Veight 148,2	38	H5C2		
	•	Ref.			Ref.			Ref.
F.P. °C F.P. 100%			dt/dP *C/mm			f to		
B.P. *C 760 mm 100	207.1 136.3	2	25°C BP t	39.303 0.0557 0.0364	5 5 5	h   to		
30	104.8	5	30 mm	0.7893	5	g'   ' <u>*K</u>		
10	81. 40.	5	ΔHm cal/g			h'	<b></b>	
Pressure			ΔHv cal/g 25°C	88.80	5	m to		
mm 25°C	0.3415 1305.	5	30 mm	80.88	5		ļ	
Density			BP	68.78	5	m¹ to		
g/ml 20°C	0.8758	2	t <sub>e</sub> (d, e)	65.91	5	n'   <u>*K</u> _	i	
dt 25	0.8719 0.8680	2	ΔHv/T <sub>e</sub>	19.43	5	L	ļ	
	0.8914	4	d 105 to	93.29	5	Surface tension dynes/cm, 20°C	31.85	5
ь	-0.0378	4	e 230 °C to	0.1183 91.28	5	₹ 30	30.73	5
Ref. Index	1,5034	2	e'   105 °C	0.0992	5	40	29.64	5
n <sub>D</sub> 20°C	1.5012	2	d <sub>c</sub> g/ml	0.269	5	Parachor [P] 20°C	1	İ
30	1.4912	4	v <sub>c</sub> ml/g t <sub>c</sub> °C	3.72 411.2	5	30 40		ĺ
"C"	0.7560	4	Pcmm	20141.	5		402.1	5
MR (Obs.) MR (Calc.)	50.07 49.397	2 5	PV/RT	<b>†</b>		Exp. L.1.%/wt.		
(nD-d/2)	1.0655	2	25°C 30 mm	1.0000 1.0000	5	u. Dispersion	169.	2
Dielectric	2.260	5	BP	0.9463	5	Flash Point *C	107.	Ë
A 105 to B 245 °C	7.04866 1692.6	5	te tc	0.9295	5	Fire Point		
c CT	199.	5	AHc kcal/m		+	M. Spec.		
A* 105 to	1.52863	5	ΔHf ΔFf			Ultra V. X-Ray Dif.		
B* 240 °C	1595.8	5	Viscosity		-	Infrared	ļ	<u> </u>
:			centistokes			Solubility in Acetone	1	
			η ·c		ŀ	Carbon tet.		
A'   20 to	7.39967	5		1		Benzene Ether	]	l
B' 105 °C	1912.6 218.1	5	B <sup>v</sup> to		†	n-Heptane Ethanol		
A'* 20 to	1.88445	5	A <sup>V</sup> I •C		ĺ	Water		ļ
B'* 105 °C	1811.3	5	(B <sup>V</sup> )  to		1	Water in	<b></b>	⊢-
Acl 245 to	7,4881	5	(A <sup>V</sup> )  °C	<u> </u>				
Bc tc C	2107.2 250.6	5	c <sub>p</sub> liq. *K			1		
Cryos, A° consts, B°			c <sub>p</sub> vap. *K					İ
t <sub>e</sub> °C	231.35	5	c <sub>v</sub> vap.	1				L
$T_{\mathbf{R}} = 0.76$	T <sub>c</sub>					grams/100 gra	ms solven	it
REFERENC	ES: 1-Dow			Calc. from de	et. da	ta 5-Calc. by for	rmula	
SOURCE:		AI						
PURIFICAT		AI	<del></del>					
LITERATUR	RE REFERE	NCE	S:					

No. 78 NAME 2, 6-Diethyl-1-methylbenzene STRUCTURAL FORMULA 2,6-Diethyltoluene H<sub>5</sub>C<sub>2</sub> C<sub>2</sub>H<sub>5</sub> Molecular C11 H16 Mole Ref. Molecular Weight 148, 238 % Pur Formula Ref. Ref. Ref F.P. °C dt/dP f to F.P. 100% °C/mm •ĸ g 25°C 42.390 5 B. P. °C h 0.0558 BP 760 mm 208.8 2 0.0364 5 f to 100 137.7 5 g' 30 5 30 mm 106, 2 0.7921 5 10 82. h١ AHm cal/g 41. to ΔHv cal/g m Pressure •ĸ 25°C 89.24 mm 25°C 0.3151 o 30 mm 81.19 te 1309. 5 BP **6**9.15 5 Density to m te (d, e) 66.39 5 •K g/ml 20°C n' 0.8907 66.28 5  $\mathbf{d_4^t}$ 0.8868 2 AHV/T 19.43 5 30 0.8829 4 Surface tension 1 105 ď 93.65 5 0.9063 -0.0378 . dynes/cm, 20°C 34.07 5 0.1173 e 235 <u>•</u>c 5 Ъ 32.89 30 đ٠ 20 91.71 5 31.75 40 Ref. Index e' 0.0991 105 5 20°C 1,5106 [P]  $\mathbf{n}_{\mathbf{D}}$ Parachor d<sub>c</sub> g/ml 0.269 5 25 1.5084 2 34.07 5 20°C ml/g 3.72 5 30 1.5058 4 5 'c 32.89 30 t<sub>c</sub> 416.1 40 31.75 5 "C" 0.7532 4 Pc mm 20737. 5 402.1 5 Sugd. MR (Obs.) 49.83 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 49.397 25°C 1.0000 5 (nD-d/2) 1.0652 2 u. 30 mm 1.0000 Dispersion 166. 2 Dielectric 2,282 5 BP 0.9472 5 Flash Point °C 0.9291 5 105 to te 7.05466 5 Fire Point tc 0.245 5 B 1250 °C 1702.1 M Spec. AHc kcal/m 199. Ultra V ΔHf A\* 105 to 1,53338 5 X-Ray Dif. ΔFf B+ 245 °C 1605.0 Infrared ĸ Viscosity Solubility in centistokes Acetone t<sub>x</sub> | to Carbon tet. °C Benzene A' | 20 to 7.40605 5 Ether B' [105 °C 1923.3 n-Heptane B<sup>V</sup> C١ 5 218.2 to Ethanol •c A1# 20 to Water 1.88973 5 (BV) Water in B'# 105 °C 1821.7 5 to Ac | 250 to 7.4950 5 (AV) °C Bc tc C 2121.1 cp liq. °K Cc 251.3 Cryos. A. •ĸ c<sub>p</sub> vap. consts. B° c, vap. te C 233,26 5  $T_{\mathbf{R}} = 0.76 \, T_{\mathbf{c}}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

TABLE I. ALKYL AND HALO BENZENES

							No. 79	
NAME	3,4-Diethy	1-1-r	methylbenzene			STRUCTURAL	FORMULA	
	3,4-Diethy	ltolu	ene			<b>△</b> 3		
Mole % Pur.	Ref. Mol	lecul:		Molecular Weight 148,2	38	C2 H	5	
		Ref.			Ref.		P	Ref.
F. P. °C			dt/dP			f to		
F.P. 100%			*C/mm 25*C	33,619	5	g '° <u>K</u>	ŀ	
B. P. *C 760 mm	203.6	2	BP	0.0554	5	h		
100	133.2	5	<sup>t</sup> e	0.0364	5	f' to		
30 10	101.9 78.	5	30 mm	0.7837	5	h'		
1	38.	5	ΔHm cal/g		-	m to		
Pressure		ا ـ ا	ΔHv cal/g 25°C	87.90	5	n <u>•K</u>		
mm 25°C t <sub>e</sub>	0.4034 1297.	5	30 mm	80.24	5			
Density			BP t <sub>e</sub>	68.34 65.64	5	m¹ to		
g/ml 20°C	0.8762	2	te (d, e)	65.55	5	n'  K_		
d <sup>t</sup> 25 4 30	0.8723 0.8684	2 4	ΔHv/T <sub>e</sub>	19.44	5		<del>                                     </del>	
a	0.8918	4	d 100 to		5	Surface tension dynes/cm. 20°C	31.91	5
ь	-0.0378	4	e 230 °C		5	¥ 30	30.79	5
Ref. Index	1,5039	١, ١	e'   100 °C	0.0995	5	40	29.69	5
25	1.5039	2	d <sub>c</sub> g/ml	0.269	5	Parachor [P] 20°C		
30	1.4991	4	vc ml/g tc °C	3.72 406.3	5	30 40	1	
"C"	0.7563	4	P <sub>c</sub> mm	20046.	5		402.1	5
MR (Obs.) MR (Calc.)	49.83 49.397	2 5	PV/RT		1	Exp. L.1.%/wt.		
(nD-d/2)	1.0652	Ž	25°C 30 mm	1.0000	5	u. Dispersion	166.	2
Dielectric	2.262	5	BP	0.9487	5	Flash Point *C		
A 100 to	7.03636	5	te tc	0.9310 0.245	5	Fire Point		
B   245 °C_	1673. 199.	5	ΔHc kcal/m		+-	M. Spec.		
A* 100 to	1.51792	5	ΔHf ΔFf		•	Ultra V. X-Ray Dif.	1	
B* <u>  235 °C</u> K	1576.6	5		-	+	Infrared		
c			Viscosity centistokes		1	Solubility in +		
t <sub>k</sub> to			η °c		1	Carbon tet.		
A'   20 to	7,38659	5				Benzene Ether		
B' 100 °C	1890.4	5	- <u>-</u>	<del> </del>	┼	n-Heptane		
C1	218.0	5	B <sup>V</sup> to			Ethanol Water	1	
A'* 20 to B'*100 °C	1.87366 1789.7	5	(B <sup>V</sup> )  - to	-		Water in		
Ac  245 to	7.4757	5	(A <sup>V</sup> )  °C					
Bc tc C	2084.2 250.4	5	c <sub>p</sub> liq. °K		1	1		
Cryos, A*	250.4	۲,	P	1				
consts. B			c <sub>p</sub> vap. *K					
te °C F	227.4	5	c <sub>v</sub> vap.					
$T_{R} = 0.76$	T <sub>c</sub>					grams/100 gra	ms solvent	
REFERENC	ES: 1-Dow			-Calc, from de	et. da	ata 5-Calc. by for	rmula	
SOURCE:		API						
PURIFICAT		API						
LITERATUI	RE REFERE	NCE	S:					
L								

No. 80 STRUCTURAL FORMULA 3, 5-Diethyl-1-methylbenzene NAME Ç H<sub>3</sub> 3, 5-Diethyltoluene Molecular C11H16 Molecular Weight 148,238 Mole Ref. Ref. Ref. -74.12 2 F.P. dt/dP to F.P. 100% °C/mm g <u>•K</u> 25°C 29.570 B, P. \*C h BP 0.0551 760 mm 200.70 <sup>t</sup>e 0.0364 5 f' to 100 130.7 5 •ĸ g' 5 30 100.0 30 mm 0.7790 5 5 10 76. h' ∆Hm cal/g 36. 5 to ΔHv cal/g m Pressure ۰ĸ 25°C 30 mm n 87.16 mm 25°C 0.4625 a 79.72 5 t<sub>e</sub> 1289. BP 67.84 5 m' to Density 65.21 5 te (d, e) 'n •ĸ g/ml 20°C 0.8630 65.09 0.8591 ٥' 2 ď4 AHV/T 19.44 5 30 0.8552 4 Surface tension Т 100 91.42 5 0.8786 30.03 dynes/cm. 20°C 5 0.1175 1 225 °C 5 ь -0.0378 30 28.96 5 89.66 to 40 27.91 5 Ref. Index ·c 0.0998 •' 100 5 20°C 1.4969 [P] 2  $\mathbf{n}_{\mathbf{D}}$ Parachor d<sub>c</sub> g/ml 0.269 5 25 1.4947 2 20°C v<sub>c</sub> t<sub>c</sub> ml/g 5 3.72 30 1.4921 4 30 •c 400.1 5 40 "C" 0.7579 4 19489. 5 5 P<sub>c</sub> mm Sugd. 402.1 50.26 MR (Obs.) 2 PV/RT Exp. L.1.%/wt. 49.357 MR (Calc.) 1.0000 5 25°C (nD-d/2) 1.0654 2 u. 30 mm 1.0000 2 Dispersion 168. 0.9489 Dielectric 2.241 5 BP 5 Flash Point °C 0.9319 te A 100 to 7.02622 5 Fire Point 0.245 5 ŧ, 1656.9 L240 °C M Spec. C 199. 5 AHc kcal/m Ultra V. ΔHſ A\* | 100 to 1.50957 5 X-Ray Dif. ΔFſ B\* 235 °C 1561.0 Infrared ĸ Viscosity Solubility in centistokes Acetone to ا يوا ا Carbon tet. •c Bensene A' 20 to 7.37581 Ether B' 1872.2 n-Heptane вv C' 217.8 5 to Ethanol •c Water A1# 1.86478 20 to Water in B'# 100 °C 1772.1 (BV) to Ac | 240 to 7.4640 (AV) °C Bc tc C 2062,1 liq. •ĸ СЪ Cc 249.6 Cryos. A. •ĸ cp vap. consts. B° c, vap. te .C F 224.13 5  $T_{R} = 0.76 T_{c}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API **PURIFICATION:** API LITERATURE REFERENCES:

TABLE I. ALKYL AND HALO BENZENES

<del></del>							No. 81	
NAME	2-Ethyl-	1, 3, 5	-trimethylbens	ene		STRUCTURAL		Α.
						CH <sub>3</sub>	5 C <sub>2</sub> H <sub>5</sub>	
Mole % Pur.	Ref. Mo	lecul:		Molecular Weight 148, 2	38	1 11	СНЗ	
		Ref		T.	Ref.	ſ		Ref
F. P. *C	-15.5	2	dt/dP			f to		
F.P. 100%			°C/mm	40.004		g '• <u>K</u>		1
B. P. °C			25°C BP	49.824 0.0562	5	h	L	
760 mm 100	212.4 140.9	2 5	t	0.0364	5	f' to	}	
30	109.1	5	30 mm	0.7979	5	g' <u>*K</u>	}	
10 1	85. 44.	5	ΔHm cal/g			h'		-
Pressure			ΔHv cal/g			m to	Ì	
mm 25°C	0.2654	5	25°C 30 mm	90.16 81.86	5	0	İ	1
t <sub>e</sub>	1318.	5	BP	69.60	5	m¹ to	<b></b>	+-
Density g/ml 20°C	0.883	2	t <sub>e</sub> (d, e)	66.90 66.64	5	n'  *K_	l	1
at 25	0.879	2	ΔHv/T	19.42	5	0'		1
4 30	0.875	4	d 110 to	94.80	5	Surface tension		
a b	0.899 -0.0 <sub>3</sub> 8	4	240 °C	0.1187	5	dynes/cm. 20°C	32.91	5
Ref. Index	-0.030	-	d'   20 to	92.63	5	40	31.73 30.59	5
n <sub>D</sub> 20°C	1.5074	2		0.0988	5	Parachor [P]		
25 30	1.5052	2 4	d g/ml v ml/g	0.269 3.72	5	20°C		
"C"	1.5025	4	vc ml/g tc °C	419.2	5	30 40	1	
	0,7554 50,0		P <sub>c</sub> mm	20438.	5	Sugd.	402.1	5
MR (Obs.) MR (Calc.)	49.397	2 5	PV/RT			Exp. L. l. %/wt.		
(nD-d/2)	1.0659	2	25°C 30 mm	1.0000	5	u. Dispersion	171.	2
Dielectric	2,272	5	BP	0.9447	5	Flash Point *C		┿
A 110 to	7.06742	5.	t e	0.9278 0.244	5	Fire Point		
B (255 °C	1722.4 199.	5	ΔHc kcal/m	+	┼╌	M. Spec.		
A* 110 to	1.54426	5	ΔHf	Į.		Ultra V. X-Ray Dif.		1
B* 245 °C	1624.8	5	ΔFÍ	ļ	₩-	Infrared		1
K — — —			Viscosity centistokes			Solubility in +		T
t <sub>k</sub>   to	1		η •c		1	Acetone Carbon tet.		1
£   •C			,		l	Benzene	į.	
A'   20 to B'   110 °C	7.41961 1946.3	5		J		Ether n-Heptane		1
c, '	218.4	5	B <sub>v</sub> to		1	Ethanol		1
A** 20 to	1.90096	5	AV L C	_		Water		1
B'+ 110 °C	1844.0	5	(B <sup>V</sup> )  to	1	1	Water in	<del>                                     </del>	+-
Ac 255 to	7.5078 2143.4	5	(A <sup>V</sup> )  °C		↓	4		
Bc t <sub>c</sub> °C	251.2	5	c <sub>p</sub> liq. •K		1	1		1
Cryos. A° consts. B°			c <sub>p</sub> vap. *K					
t <sub>e</sub> °C F	237, 32	5	c <sub>v</sub> vap.		1		İ	
$T_{R} = 0.76$	1	<u> </u>	ш	<del></del>	ч	grams/100 gra	ms solve	nt.
	ES: 1-Dow	2-A	PI 3-Lit. 4	Calc. from de	et. de			
SOURCE:			PI			<u> </u>		
PURIFICAT	ION:	A	PI			***************************************		
	RE REFERE	NCE	S:					

No. 82 3-Ethyl-1, 2, 4-trimethylbenzene STRUCTURAL FORMULA NAME ÇНЗ CH3 Molecular C11H16 Ref. Molecular Weight 148,238 C2H5 Mole % Pur Formula ČНЗ Ref. Ref Ref. F.P. \*C F.P. 100% dt/dP f to °C/mm °K g 25°C 60.204 0.0565 5 B. P. \*C h BP 760 mm 216.6 2 5 0.0364 5 ſ١ to 100 144.6 g¹ 5 30 112.5 30 mm 0.8046 5 88. 5 10 h' AHm cal/g 47. m to ΔHv cal/g Pressure ۰ĸ 25°C 91.25 mm 25°C 0.2170 0 30 mm 82.63 1328. 5 BP 70.26 5 m' to Density 67.53 5 te (d, e) •ĸ g/ml 20°C n' 0.895 2 67.24 5  $\mathbf{d_4^t}$ 0.891 2 5 AHv/Te 19.43 30 0.887 4 Surface tension d 1 110 96.01 5 to 0.911 -0.0<sub>3</sub>8 dynes/cm. 20°C 34.74 | <u>240</u> | 20 <u>•c</u> 0.1189 5 ь ã۰ 30 33.51 5 93.71 40 32.32 5 Ref. Index e' 110 0.0984 5 20°C 1.5133 [P] n<sub>D</sub> Parachor d g/ml v ml/g tc °C 0.269 5 25 1.5111 20°C 5 3.72 30 1.5083 4 30 427.1 5 ŧ<sub>c</sub> 40 "C" 0.7533 4 P<sub>c</sub> mm 21022. 5 Sugd. 402.1 5 MR (Obs.) 49.8 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 49.397 25°C 1.0000 5 (nD-d/2) 1.0658 2 30 mm 1.0000 Dispersion 171. 2 Dielectric 2.290 5 0.9436 ВP 5 Flash Point °C t<sub>e</sub> 0 9266 5 110 to 7.08241 Fire Point 0,244 5 tc 1746.2 L260\_°C M Spec. C 199. 5 AHc kcal/m Ultra V. ΔHf A\* | 110 to 1.55670 5 X-Ray Dif. ΔFf B\* 250 °C 1647.9 Infrared ĸ Viscosity Solubility in c centistokes Acetone to Carbon tet. •c Benzene A' | 20 to 7.43554 Ether B' 1110 °C 1973.1 n-Heptane B<sup>V</sup> I 5 218.6 to Ethanol ÃV I ٠c Water A1# 20 to 1.91420 Water in B'# 110 °C (BV) 1870.1 to Ac | 260 to 7,5241 5 (A<sup>V</sup>)<sub>1</sub> °C Bc |\_tc\_ 2174.2 cp liq. ۰ĸ Cc 252.1 Cryos. Aº c<sub>p</sub> vap. ۰ĸ consts. Bº te •C c, vap. 242.06  $T_{\mathbf{R}} = 0.76 \, T_{\mathbf{c}}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

No. 83

NAME	4-Ethyl-l,	2, 3-	trimethylbenze	ne		STRUCTURAL FORMUL	LA
Mole % Pur.		lecul rmula	C <sub>11</sub> H <sub>16</sub>	Molecular Weight 148.2	38	C2H5	
		Ref.			Ref.		Ref.
F. P. *C F. P. 1009			dt/dP °C/mm			f to g K	
B. P. °C 760 mm 100 30	220.4 147.9 115.6	2 5 5	25°C BP t <sub>e</sub> 30 mm	71.535 0.0569 0.0364 0.8106	5 5 5	h   to g'  *K	
10	91. 49.	5	∆Hm cal/g			h¹	$\perp$
Pressure mm 25°C t <sub>e</sub>		5	ΔHv cal/g 25°C 30 mm BP	92.23 83.34 71.01	5 5	m   to n   - *K o   to	
Density g/ml 20°0 dt 25 4 30	0.8980 0.8941	2 2 4	t <sub>e</sub> (d, e) ΔHv/T <sub>e</sub> d 115 to	68.09 67.95 19.43	5 5	n' <u>*K</u> o' Surface tension	
a b Ref. Index	0.9175 -0.0378	5	e 245 °C d 20 to	0.1177 94.68	5	dynes/cm. 20°C 35.82 30 34.60 40 33.40	5 5
n <sub>D</sub> 20°0 25 30		2 2 4	e'   115 °C d g/ml vc ml/g tc °C	0.0981 0.269 3.72 434.3	5 5 5	Parachor [P] 20°C 30	
"C"	0.7540	4	P <sub>c</sub> mm	21563.	5	40 Sugd. 402, 1	5
MR (Obs. MR (Calc. (nD-d/2) Dielectric	1.0670	2 5 2	PV/RT 25°C 30 mm BP	1.0000	5	Exp. L.1.%/wt. u. Dispersion 171.	2
A 115 to B 1265 °C	7, 09606	5 5 5	te tc ΔHc kcal/m	0.9444 0.9254 0.242	5 5 5	Flash Point *C Fire Point  M. Spec. Ultra V.	
A* 115 to B* 255 °C K		5	ΔHf ΔFf Viscosity			X-Ray Dif. Infrared Solubility in +	
t <sub>k</sub> to	;	5	rentistokes η °C			Acetone Carbon tet. Benzene	
B' 115 °C		5	B <sup>V</sup> to			Ether n-Heptane Ethanol	
A'* 20 to B'*115 °C	1894.0	5	(B <sup>V</sup> )  to	-		Water Water in	
Ac 265 to	7.5397 2203.0 252.9	5 5	c <sub>p</sub> liq. °K				
Cryos, A consts, B			c <sub>p</sub> vap. °K				
te °C F		5	c <sub>v</sub> vap.	<u> </u>			
$T_{\mathbf{R}} = 0.$						grams/100 grams solve	ent
REFEREN	CES: 1-Dow	2-A	PI 3-Lit. 4-	Calc, from d	et. da	ata 5-Calc. by formula	
SOURCE:		API					
PURIFICA	TION:	API					
LITERAT	JRE REFERE	NCE	s:		-		
ļ							

No. 84 STRUCTURAL FORMULA NAME 5-Ethyl-1, 2, 3-trimethylbenzene СНЗ Molecular Molecular Mole Ref. C11H16 % Pur Formula Weight 148,238 Ref. Ref. Ref dt/dP to F.P. 100% °C/mm g <u>•</u>K 25°C 58.039 5 B. P. \*C h BP 0.0565 **5** 760 mm 215.8 5 0.0364 f t<sub>e</sub> to 100 143.9 g' •ĸ 5 30 111.9 30 mm 0.8033 5 10 87. 5 h' ∆Hm cal/g 46 to m AHv cal/g Pressure •ĸ n 25°C 91.04 5 mm 25°C 0.2256 30 mm o 82.48 5 1327. t<sub>e</sub> 5 BP 70.20 5 m to Density g/ml 20°C 67.42 5 te (d, e) n' •K 0.8863 2 5 67.20 ۰, 0.8824 2 ď4 AHV/Te 19.43 5 30 0.8785 4 Surface tension d 110 95.70 5 0.9019 -0.0<sub>3</sub>78 dynes/cm. 20°C 33.41 240 •с 0.1182 5 Ъ ď٠ 30 32.24 20 93.50 5 Ref. 40 31.11 Index e' 110 0.0985 5 20°C 1,5101 2 [P] n<sub>D</sub> Parachor d<sub>c</sub> g/ml 0.269 5 25 1.5079 2 20°C ml/g 3.72 5 30 1.5053 4 c 30 425.1 5 tc 40 "C" 0.7563 4 5 20822. P<sub>c</sub> mm 402.1 Sugd. 5 50.03 MR (Obs.) 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 49.397 25°C 1.0000 5 (nD-d/2) 1.0670 2 u. 30 mm 1.0000 172. 2 Dispersion Dielectric 2.280 5 ВP 0.9447 5 Flash Point °C A 110 to t. 5 7.07954 5 Fire Point 0.244 5 tc L 260 °C 1741.6 M Spec. 199. AHc kcal/m С 5 Ultra V. ΔHf A\* | 110 to 1.55391 5 X-Ray Dif. ΔFf B\* 250 °C 1643.3 Infrared ĸ Viscosity Solubility in c centistokes Acetone t | to Carbon tet. •c Benzene A' 20 to 7.43249 Ether B' 1110 °C 1968.0 n-Heptane вv 218.6 5 to Ethanol ÃV •c A1# 20 to Water 1.91167 Water in (BV) B'# 110 °C 1865.1 to Ac | 260 to 7.5215 5 (AV) °C Bc tc C 2168.6 cp liq. ۰ĸ Cc 251.9 Cryos. A\* °K c<sub>p</sub> vap. consts, B° c, vap. f .C 241.16 5  $T_{R} = 0.76 T_{c}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

**No.** 85

NAME	5- <b>E</b>	thyl-	1,2,4	-trimethylbenz	ene		STRUCTURAL CH3		-A
Mole % Pur.	Ref	. Moi	lecul:	C <sub>11</sub> H <sub>16</sub>	Molecular Weight 148.2	38	H5C2 CH3	3	
			Ref.			Ref.			Ref.
F. P. *C	-13.5	-	2	dt/dP			f to		
F. P. 1009	6			°C/mm			g  K		1
B. P. *C				25°C	51.191	5	h		
760 mm	213.0		2	BP	0.0562 0.0364	5	<del>                                     </del>		+-
100	141.4		5	t <sub>e</sub>	1		g' to		
30 10	109.6 85.	1	5	30 mm	0.7988	5	h'		1
i	44.		5	∆Hm cal/g	<u> </u>	<u> </u>	<b>}+</b>		+
Pressure	1			ΔHv cal/g			m to		i
mm 25°C	0.2	578	5	25°C 30 mm	90.32 81.97	5	。		ļ
te	1319.		5	BP	69.76	5	<del>  -</del>		+-
Density	_ [			t <sub>e</sub> , ,	66.98	5	m' to		
g/ml 20°0			2	Te (a, e)	66.81	5	;;		-
dt 25	0.8		2 4	AHV/Te	19.42	5			+
. 50			4	d 110 to	94.90	5	Surface tension dynes/cm. 20°C	22 01	1.
ь	-0.0	38	4		0.1180	5	8 30	32.91 31.73	5
Ref. Index				d' 20 to e' 1110 °C	92.79	5	40	30.59	5
n <sub>D</sub> 20°	1.5	075	2	<del></del>	0, 269	5	Parachor [P]		T
25		053	2 4	d g/ml v ml/g	3.72	5	20°C		
30	<del></del>	026		tc °C	420.0	5	30 40		
"C"		555	4	P <sub>c</sub> mm	20458.	5	U 1 1	402.1	5
MR (Obs.			2	PV/RT		<del>                                     </del>	Exp. L.1,%/wt.		$\top$
MR (Calc. (nD-d/2)		197 1660	5 2	25°C	1.0000	5	' u.		
Dielectric			-	30 mm	1.0000	5	Dispersion	173.	2
····			5	BP t	0.9456 0.9276	5	Flash Point C		
A 110 to B 255 °C		695 <b>5</b>	5	t e	0.244	5	Fire Point		
c	199.	,	5	AHc kcal/m	1	1	M. Spec.		1
A* 110 to	1.5	4611	5	ΔHf		İ	Ultra V. X-Ray Dif.		į
B* 250 °C	1628. 1		5	ΔFf		ļ	Infrared		
K c				Viscosity centistokes			Solubility in +		
i <sub>k</sub> - 1	-			η ·c		1	Acetone		
<u>\$</u>	7			1	1	1	Carbon tet. Benzene		
A'  20 to		2187	5		1	1	Ether		1
B' 1_110 °C			5	EV I		+	n-Heptane		
	218.4		5	B <sup>V</sup> to A <sup>V</sup> C		1	Ethanol Water		
A'* 20 to B'* 110 °C		0284	5	(B <sup>V</sup> )  to	-1	1	Water in		
Ac  255 to		107	5	(A <sup>V</sup> )  °C	1				T
Bc tc			5		+	+	1		
Cc	251.4		5	c <sub>p</sub> liq. *K		1			
Cryos. A consts. B				c <sub>p</sub> vasp. <sup>●</sup> K					
te °C F	238.0	,	5	c <sub>v</sub> vap.		1	1		
$T_R = 0.$	76 T <sub>c</sub>						grams/100 gra	ms solve	nt
REFEREN	CES: 1-	Dow	2-A	PI 3-Lit. 4-	Calc, from de	et. d	ata 5-Calc, by for	mula	
SOURCE:				\PI					
PURIFICA	TION:		- 1	\PI					
LITERAT		FERE	NCE	 S:					

No. 86 6-Ethyl-1, 2, 4-trimethylbenzene STRUCTURAL FORMULA NAME Molecular Mole Ref. Molecular C11H16 Weight 148,238 Formula % Pur Ref. Ref Ref F.P. °C F.P. 100% dt/dP f to °C/mm g °K 25°C 51.191 B. P. \*C h ВP 0,0562 760 mm 213.0 2 5 ſ 0.0364 100 to 141.4 5 g' °K 30 109.6 5 30 mm 0.7988 5 10 85. 5 h' AHm cal/g 44. 1 to m ΔHv cal/g Pressure n •ĸ 90.32 25°C 0,2578 mm 25°C 5 30 mm 81.97 5 5 te 1319. 5 69.77 BP m' to Density g/ml 20°C te (d, e) 66.99 5 °K 'n 0.8897 2 66.82 5 ٥' 0.8858  $\mathbf{d_{4}^{t}}$ 25 2 ΔHv/T<sub>e</sub> 19.43 5 30 0.8819 4 Surface tension 110 94.89 5 0.9053 -0.0<sub>3</sub>78 . 4 dynes/cm. 20°C 33.92 <u>•</u>c e <u>l 240</u> 0.1180 ь 4 30 32.75 | 20 | 110 to 92.79 40 31.60 e' Ref. Index 0.0987  $\mathbf{n}_{\mathbf{D}}$ 20°C 1,5118 2 [P] d g/ml vc ml/g tc °C Parachor 0.269 5 25 1.5096 20°C 2 3.72 5 30 1.5070 4 30 421.8 5 40 "C" 0.7557 4 P 5 mm 20844. Sugd 402.1 5 MR (Obs.) 49.98 PV/RT Exp. L.1.%/wt. MR (Calc.) 49.397 25°C 5 1.0000 (D-d/2) 1.0670 2 30 mm 1.0000 172. 2 Dispersion Dielectric 2,286 5 ВP 0.9456 Flash Point °C 0.9276 110 to 7.06955 t<sub>e</sub> 5 Fire Point tc 1725.8 0.244 B 255 °C M Spec. С 199. 5 AHc kcal/m Ultra V A\* | 110 to A Hf 1.54611 5 X-Ray Dif. ΔFf 1628.1 B+ 250 °C Infrared Viscosity Solubility in centistokes Acetone to Carbon tet. •c Benzene A1 20 to 7.42187 Ether B' (110 °C 1950.1 n-Heptane B<sup>V</sup> | C' 218.4 5 Ethanol to ٠c Water A'\* 20 to B'\* 110 °C 1.90284 1847.7 5 Water in (BV) to Ac | 255 to 7.51125 5 (AV)1 °C Bc tc\_C 2150.2 сp liq. ۰ĸ Cc 251.8 Cryos. A\* •K cp vap. consts. B° t<sub>e</sub> •C c, vap. 5 F 238.0  $T_R = 0.76 T_c$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula API SOURCE: PURIFICATION: API LITERATURE REFERENCES:

No. 87 Pentamethylbenzene NAME STRUCTURAL FORMULA CH<sub>3</sub> СНЗ Mole Ref. Molecular Molecular C11H16 Weight 148, 238 % Pur. Formula Ref. Ref. F.P. °C F.P. 100% 54.3 2 dt/dP to °C/mm ۰ĸ g 25°C 120,66 5 B. P. °C h BP 0.0578 5 760 mm 231.8 5 f٩ 0.0364 to 100 157.9 5 g' •<u>к</u> 30 125.0 5 0,8285 5 30 mm 10 100. h' ∆Hm cal/g 1 57. 5 m to ∆Hv cal/g Pressure n •K 25°C 95.21 mm 25°C 0.1038 o 30 mm 85.50 5 te 1366. 5 ΒP 72.85 5 m' Density to 69.82 te te (d, e) n' ۰ĸ g/ml 20°C 0.917 5 69.60 ۰, 0.913 25 2 dt4 AHV/T 19.44 5 30 0.909 4 Surface tension d 125 100.30 to 5 0.933 -0.0<sub>3</sub>8 dynes/cm. 20°C 38,28 e | 260 d' | 20 °C 0.1184 ь 30 36.96 5 5 to 97.64 40 35.68 5 Ref. Index e' | 125 °C 0.0971 5 20°C 1.527 [P] <sup>n</sup>D Parachor 5 dc g/ml 0.269 1.525 2 25 20°C vc ml/g tc °C 5 3.72 1.522 4 30 30 452.1 5 40 "C" 0.7536 4  $P_c$  mm 22419. 5 5 Sugd. 402.1 49.8 F MR (Obs.) 2 Exp. L.1.%/wt. PV/RT 49, 397 MR (Calc.) 1.0000 1.068 # 25°C 5 u. (nD-d/2)2 30 mm 1.0000 Dispersion 174. 2 Dielectric 2.332 5 BP 0.9414 Flash Point C 0.9220 te tc A 125 to 7, 13756 5 Fire Point 0,241 B | 280 °C 1833.8 M. Spec. C 199. 5 AHc kcal/m Ultra V. ΔHf A\* 125 to 1.60312 X-Ray Dif. ΔFf B\*| 270 °C 1733.2 Infrared ĸ Viscosity Solubility in centistokes Acetone •c to Carbon tet. ٠c tx | Benzene A' | 20 to 7,49417 Ether B' 125 °C 2072.1 n-Heptane B<sub>v</sub> | 219.4 Ethanol to ٠c Water A1# 20 to 1.96339 Water in B'\* 125 °C (B<sup>V</sup>) 1966.5 to Ac| 280 to (AV) 7.5838 5 °C Bc tc °C 2284.2 c<sub>p</sub> liq. ۰ĸ Cc 254.4 Cryos. A° c<sub>p</sub> vap. ۰ĸ consts. B° c<sub>v</sub> vap. te °C 259.20  $T_{\mathbf{R}} = 0.76 \, T_{\mathbf{c}}$ grams/100 grams solvent for undercooled liquid 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula REFERENCES: 1-Dow API SOURCE: API PURIFICATION: LITERATURE REFERENCES:

No. 88 STRUCTURAL FORMULA NAME n-Hexylbenzene <u> 26</u>H13 l - Phenylhexane Molecular C12H18 Ref. Molecular Weight 162.264 Mole % Pur Formula Ref. Ref Ref. <u>F.P.</u> -61.0 2 dt/dP to F. P. 100% °C/mm °K g 25°C 116.663 B, P. °C ħ 0.056 BP 2 760 mm 226.1 f 0.0351 5 to 100 154.5 5 g' •ĸ 30 122.4 30 mm 4 0.8065 4 10 97.7 5 h' AHm cal/g 56.2 5 -0.0265 300 to m AHv cal/g Pressure 0.0013 600 °K 25°C 88.83 mm 25°C 0.1051 5 0 -0.0655 4 30 mm 79.20 5 t. 1370. 5 BP 68.00 5 700 to 0.0839 0.0011 Density m۱ 5 65.22 t (d, e) 11000 °K g/ml 20°C n' 0.8575 5 65.12 -0.0637 o١ 4 ď, 25 0.8537 2 AHv/T 20.12 5 30 0.8499 4 Surface tension d 122 5 to 92.42 0.8727 -0.0376 dynes/cm. 20°C 29.53 . 250 20 •ღ 0.1080 5 Ъ 4 30 28.49 5 ä٠ 91.30 ı 40 27.49 5 Ref. Index •' 122 0.0988 20°C 1,4864 P **n**D Parachor dc g/ml 0.278 5 25 1.4842 2 20°C ml/g 30 1.4820 4 c 30 •C 423.6 5 ŧč 40 "C" 0.7480 4 P 19160. 5 mm Sugd. 441.1 5 MR (Obs.) 54.37 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 54.015 25°C 1.0000 5 (nD-d/2)1.0577 2 u. 30 mm 1,0000 Dispersion 2 149. Dielectric 0.9536 BP 2,209 5 5 Flash Point °C 0.9363 120 to t<sub>e</sub> 5 7.18284 1813.74 5 Fire Point tc 0.245 5 В 1290 °C M Spec. C 195.5 5 AHc kcal/m 1635.65 2 Ultra V ∆Hf gas -13.15 A\* | 120 to 1.67370 5 X-Ray Dif. ΔFf B\* 265 °C 1709.72 Infrared ĸ Viscosity Solubility in c centistokes Acetone to 20 °C 1.953 2 Carbon tet. •c 1.419 40 2 Bensene • 1.098 60 2 A' 20 to 7.54230 Ether 80 80 0.876 2 B' (125 °C 2049, 47 n-Heptane œ C١ 215.5 30 5 to 579.33 Ethanol 00 ĀV A1# 20 2.05771 1 90 °C Z, 21362 4 Water 5 Water in (BV) 90 B'# 125 °C 1947.20 5 597.74 to Ac | 290 to Viscosity 7.88933 (A<sup>V</sup>)| 160 5 •c **Z**. 25968 centistokes Bc \_tc\_ 2561.8 •c cp liq. •ĸ 100°C 0.72 2 Cc 286.7 110 0, 66 2 Cryos. A. c<sub>p</sub> vap.300°K 0.32712 2 0.47 2 150 consts. B. 4 00 0.42295 2 c, vap. te .C 252,77 5 TR = 0.81 Tc grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

TABLE I. ALKYL AND HALO BENZENES

							No. 89		
NAME	o-Diisopro	pylbe	nzene			STRUCTURAL FORMULA			
	l,2-Diisop	ropy	lbenzene			CH(CH <sub>3</sub> ) <sub>2</sub> CH(CH <sub>3</sub> ) <sub>2</sub>			
Mole % Pur. 9	% Pur. 99.6 3 Formula C12H18 Weight 162.264								
		Ref.			Ref.			Ref.	
F.P. C F.P. 100	-56.68	31	dt/dP *C/mm			f to			
B. P. °C 760 mm 100 30	203.75 133.73 102.6	3 3 4	25°C BP t <sub>e</sub> 30 mm	35.166 0.05496 0.0360 0.7820	5 4 5	f'   to			
10 1	78.7 38.6	5	ΔHm cal/g			h'		L	
Pressure mm 25°C		5	ΔHv cal/g 25°C 30 mm	80.62 73.72	5 4	m to			
Density g/ml 20°		3 5	BP t <sub>e</sub> t <sub>e</sub> (d, e)	63.05 60.65 60.54	5 5 5	m¹ to			
dt 25 4 30	0.86932	5	ΔHv/T <sub>e</sub>	19.65	5	6 6 4 4 4	<del></del>		
a b	0.89255 -0.0 <sub>3</sub> 77	5	d 100 to e 230 °C d' 20 to	84.53 0.1054 82.85	5 5 5	Surface tension dynes/cm. 20°C 30 40	32.31 31.19 30,09	5 5	
Ref. Inde: n <sub>D</sub> 20° 25 30		<b>3</b> 5 5	d g/ml vc ml/g t °C	0.0890 0.278 3.592	5 5 5	Parachor [P] 20°C 30			
"C"	0.7449	4	1 _	395.8 18348.	5	40 Sugd	441 1	5	
MR (Obs. MR (Calc (nD-d/2)		4 5 4	P <sub>c</sub> mm PV/RT 25°C	1.0000	5	Exp. L.1.%/wt.	441.1		
Dielectric	2.238	5	30 mm BP	1.00 <b>0</b> 0 0.9510	5	Dispersion	157.	3	
A 100 to B 260 °C		4 4 4	te t	0.9346 0.25	5 5	Flash Point C Fire Point M. Spec.	77.	3	
A* 100 to B* 240 °C	1.59289	5 5	ΔHc kcal/m ΔHf ΔFf			Ultra V. X-Ray Dif. Infrared	Yes Yes	3	
K c tk contact	s		Viscosity centistokes 7 °C			Solubility in Acetone Carbon tet. Benzene	80 80		
A'   20 to B'   100 ' C'		5 5 5	B <sup>V</sup> to			Ether n-Heptane Ethanol	&C &C &C		
A** 20 to B** 100 *0	C 1813.6	5 5	$\frac{A^{V}}{(B^{V}) } - \frac{{}^{t}O}{to}$			Water Water in		_	
Acl 260 to Bc t <sub>c</sub> *C	7.73507 C 2354.6 282.4	5 5 5	(A <sup>V</sup> )  °C c <sub>p</sub> liq. °K		-				
Cryos, A consts, B		3	c <sub>p</sub> vap. *K						
t <sub>e</sub> °C F		5	c <sub>v</sub> vap.	L	l	<u> </u>	L	<u></u>	
$T_R = 0.$		•	DI 3 1 10 1	C-1- 4		grams/100 gra		t	
	ICES: 1-Dow	Z-A LI		Calc. from de	t. di	ata 5-Calc, by for	IIIQM		
SOURCE:	TION		T.				<u></u>		
PURIFICA									
LITERATURE REFERENCES: 3 JACS 70, 935 (1948) Melpolder, Woodbridge, Headington; 3' NFPA 325									
I									

r							No. 90	
NAME	m-Diisop	ropyl	benzene			STRUCTURAL FORMULA		
	l, 3-Diiso	prop	ylbenzene			CH ( CH <sub>3</sub> ) <sub>2</sub>		
Mole % Pur. 99	Ref. Mo	lecul rmul		Molecular Weight 162.2	64	<b>Ј</b> сн ( с	13)2	
		Ref.			Ref		R	lef.
F.P. °C F.P. 1009	-63.13	3	dt/dP *C/mm			f to		
B. P. °C 760 mm	202.10	,	25°C BP	34.526 0.0548	5 4	h		
100	203.18 133.29	3	t <sub>e</sub>	0.0359	5	f' to		
30 10	102.20	4	30 mm	0.7806	4	g'   'K_		
i	78.4 38.4	5	ΔHm cal/g			h'		
Pressure			ΔHv cal/g 25°C	90 57		m to		
mm 25°C	0.3915 1302.	5 5	30 mm BP	80.57 73.69 63.12	5 4 5	0		
Density g/ml 20°	0.85593	3	ll •	60.65	5	m' to		
at 25	0.85200	5	'e (d, e)	60.64	5	0'		
4 30	0.84806	5	ΔHv/T <sub>e</sub>	19.68	5	Surface tension		
a b	0.87165 -0.0 <sub>3</sub> 79	5	d 100 to e 230 °C d' 20 to	84.39 0.1047 82.80	5 5 5	dynes/cm. 20°C	28.25	5
Ref. Index		3	d'   20 to e'   100 °C	0.0891	5	Parachor [P]	21.21	5
25	1.4854	5	d g/ml vc ml/g tc °C	0.278	5	Parachor [P] 20°C		
30	1.4830	5	tc C	3.592 391.2	5	30 40		
"C"	0.7510	4	P <sub>c</sub> mm	17617.	5	II.	441.1	5
MR (Obs. MR (Calc.		4 5	PV/RT			Exp. L.1.%/wt.		
(nD-d/2)	1.06086	4	25°C 30 mm	1.0000 1.0000	5	u. Dispersion	155.	3
Dielectric	2,215	5	BP	0.9526	5	Flash Point °C	133.	<u> </u>
A 100 t		4	t <sub>e</sub>	0.9353 0.25	5	Fire Point	1	
B [260 •	C 1693.57 200.0	4	t <sub>c</sub> ΔHc kcal/m		<del>                                     </del>	M Spec.		3
A*   100 t	1.59497	5	ΔHf		1	Ultra V. X-Ray Dif.	Yes	3
B* 240 °	C 1594.7	5	ΔFf		ļ	Infrared	Yes	3
c			Viscosity centistokes			Solubility in +		
<u>                                   </u>			η •c			Acetone Carbon tet.	ec	
t <sub>x</sub>		5				Benzene	<b>•</b>	
B' [100 •	C 1913.7	5				Ether n-Heptane	ec	
C'	219.0	5	B <sup>V</sup>   to A <sup>V</sup>   °C			Ethanol	•	
A'* 20 t B'* 100 *		5	<u> </u>			Water Water in		
Ac   260 t		5	1 . v.'	1	1			
Bc tc *	C 2062.4	5			-			
Cryos. A	241.3	3	c <sub>p</sub> liq. *K					
te °C F	<del></del>	5	c <sub>v</sub> vap.					
$T_{\mathbf{R}} = 0$ .	1		Ш	L	<u>.                                    </u>	+ grame/100 c==	na aalusut	
	CES: 1-Dow	2-A1	PI 3-Lit. 4-C	alc. from de	t. da	grams/100 granta 5-Calc. by for		
SOURCE:			LIT.			5-0a.c. by for		_
PURIFICA	TION:		LIT.	<del></del>				
<u> </u>	JRE REFERE			935 (1948) M	elpol	der, Woodbridge,	Headington	
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TABLE I. ALKYL AND HALO BENZENES

				—т	<b>No.</b> 91					
NAME	p-Diisopro	p-Diisopropylbenzene					STRUCTURAL FORMULA ÇH(CH <sub>3</sub> ) <sub>2</sub>			
	l,4-Diisop	ropy	lbenzene							
Mole % Pur. 9		mula		Molecular Veight 162,26	4	CH(CH	3)2			
		Ref.			Ref.			Ref		
F.P. °C F.P. 100	-17.07 %	3	dt/dP *C/mm	47.24/		f to				
B. P. °C 760 mm 100 30 10	210.37 139.43 107.87 83.7	3 4 5	25°C BP t <sub>e</sub> 30 mm	47.246 0.0557 0.0361 0.7923	5 4 5 4	h   to   to   h'				
1	43.	5	ΔHm cal/g			m to		+-		
Pressure mm 25°0 t <sub>e</sub>	0.2798 1317.	5	ΔHv cal/g 25°C 30 mm BP	82.37 74.82 63.79	5 4 5	n				
Density g/ml 20° d <sup>t</sup> 25 d <sub>4</sub> 30	0.85290	3 5	te te (d, e) ΔHv/Te	61.28 61.13 19.56	5 5	m' to				
a b	0.84903 0.87220 -0.0377	5 5 5	d 105 to e 240 °C d' 20 to	86.43 0.1076 84.65	5 5 5	Surface tension dynes/cm. 20°C 30 40	29.42 28.38 27.36	5 5 5		
Ref. Inde  nD 20° 25 30		3 5 5	e'   105 °C d g/ml vc ml/g t °C	0.0911 0.278 3.60 401.6	5 5 5	Parachor [P] 20°C 30	21,30	13		
"C"	0.7533	4	tc°C Pcmm	17688.	5	40 Sugd	441.1	5		
MR (Obs. MR (Calc (nD-d/2)		4 5 4	PV/RT 25°C 30 mm	1.0000	5	Exp. L.1.%/wt. u. Dispersion	157.	3		
Dielectri		5	BP	0.9483	5	Flash Point °C	81.0	5		
A 105 t B 1270 C		4 4	te tc ΔHc kcal/m	0.9313 0.25	5	Fire Point  M. Spec.	Yes	3		
A* 105 t B* 245 °		5	ΔHf ΔFf Viscosity			Ultra V. X-Ray Dif. Infrared	Yes Yes	3		
c t <sub>k</sub>	°C		centistokes 7 °C			Solubility in + Acetone Carbon tet. Benzene	80 80 80			
A'  15 t B' 105 C'	C 1941.7 218.1	5 5 5	B <sup>V</sup> to A <sup>V</sup> C			Ether n-Heptane Ethanol Water	80 80 80			
A'* 15 t B'* 105		5	$\frac{1}{(\mathbf{B}^{\mathbf{v}})^{\top}} - \frac{1}{\mathbf{t}_0}$			Water in				
Acl 270 t Bc tc		5 5 5	(A <sup>V</sup> )  °C c <sub>p</sub> liq. °K		<u>.                                    </u>					
Cryos. A		3	c <sub>p</sub> vap. *K							
$t_e  ^{\circ}C \qquad \qquad T_R = 0.$	F 235.03	5	c <sub>v</sub> vap.		<u></u>	grams/100 gra	ms solve	nt		
	NCES: 1-Dow	2-A	PI 3-Lit. 4-	Calc. from de	t. da	ata 5-Calc. by for				
SOURCE:			LIT.							
PURIFIC	ATION:	_	LIT.							
LITERAT	URE REFERE	NCE	S: 3 JACS <u>70</u> ,	935 (1948) M	elpol	lder, Woodbridge,	Headingto	n		

No. 92 STRUCTURAL FORMULA n-Heptylbenzene NAME £7<sup>H</sup>15 l -Phenylheptane Ref. Molecular Molecular Mole C13H20 % Pur Formula Weight 176,290 Ref. Ref -48. •c 2 dt/dP f to F. P. 100% °C/mm 25°C g <u>•</u>K B. P. °C 296.174 h BP 0.0580 2 760 mm 245.5 2 t<sub>e</sub> 0,0355 5 ſ١ to 100 171,27 5 \_K g' 138.03 30 4 30 mm 0.8361 4 5 10 112.5 h' ∆Hm cal/g 69.4 5 -0,0225 0,0013 m 300 to AHv cal/g Pressure 600 °K 4 n 25°C 86.98 5 mm 25°C 0.0389 o -0.0655 30 mm 75.99 5 te 1413. 5 64. **6**8 BP 5 5 5 700 to 0.0865 Density g/ml 20°C 61.78 t (d, e) 11000 °K n' 0.0011 0.8567 61.61 0' -0.0637 4 0.8530 2 25 ď4 AHV/T 19.88 5 30 0.8493 4 Surface tension d 140 90.52 5 0,8715 -0,0374 dynes/cm. 20°C 29.63 e 270 5 0.1053 4 Ъ 30 28.62 27.63 89.41 15 5 40 5 Ref. Index •' 140 0.09717 1.4854 20°C P **m**D 2 Parachor 0.274 dc g/ml 5 25 1.4832 2 20°C ml/g vc tc 3.647 30 1.4810 4 •c 30 439.7 5 40 "C" 0.7469 4 17191. P<sub>c</sub> mm 5 Sugd. 480.1 5 MR (Obs.) 59.01 2 PV/RT Exp. L. 1. %/wt. MR (Calc.) (nD-d/2) 58.633 5 25°C 1.0000 5 u. 1.0570 30 mm 1.0000 5 Dispersion 2 145. Dielectric RP 2.1987 5 0.9462 5 Flash Point °C t<sub>e</sub> 0.9268 5 Fire Point 135 to 7, 19114 5 tc 5 0.246 В L305\_°C 1885.77 M Spec. C 192.0 5 AHc kcal/m 1782,58 Ultra V ΔHf A\* 135 to B\* 285 °C 1.71535 5 X-Ray Dif. ΔFf 1782.46 Infrared ĸ Viscosity Solubility in centistokes Acetone to 20 °C ķ 2.43 2 Carbon tet. •c 00 40 1.722 2 Benzene 60 1.305 2 15 to 7.55112 5 Ether 80 1.025 B' 2130,86 n-Heptane C 212.8 5 30 623.11 Ethanol 80 AV | 90 A'\* 15 to B'\* 140 °C •c Z. 24654 4 Water 2.09472 5 Water in (BV) | 100 2027.85 5 to 611,17 Ac | 305 to 7.79109 (AV)| 160 5 •c 2, 28011 4 Viscosity Bc \_\_tc\_\* 2528.2 •c centistokes cp liq. •ĸ Cc 270.4 100°C 0.831 2 0.750 c<sub>p</sub> vap.300°K 110 2 Cryos. A\* 0.33229 consts. B° 150 0,530 2 0.42867 400 2 c, vap. f° .C 274.65 5 TR = 0.81 Tc grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

TABLE I. ALKYL AND HALO BENZENES

								No. 93	
NAME	n-Octylbenzene					STRUCTURAL FORMULA			
] [	l-Phenyloctane					C8H17			
<del> </del>					$\dashv$				
Mole		lecul		Molecular	. 1		ل ا		
% Pur.	For	mul	14 22   1	Weight 190.31		,			
	1 24	Ref.		<del></del>	Ref.	<b></b> -	<del>-1</del> 1		Ref.
F.P. *C F.P. 100	-36.	-	dt/dP *C/mm			f	to K		
B. P. *C	-		25°C	904.1	5	g l			
760 mm	264.5	2	BP	0.060	5	f'			
100 30	187.9 153.8	5	t <sub>e</sub> 30 mm	0.0365	5	g	to		
10	127.6	5		0.8572	-	h'	<b>-</b>		
1	84.	5	ΔHm cal/g	<del> </del>	$\vdash$	m	300 to	-0, 0192	4
Pressure mm 25°C		ا ۔ ا	ΔHv cal/g 25°C	88.98	5	n	600 <b>•</b> K	0.0013	4
t <sub>e</sub>	0.0115 1427.	5	30 mm	74.03	5	L		-0.0 <sub>6</sub> 54	4
Density			BP	60.92 57.64	5	m'	700 to	0.0913	4
g/ml 20°0		2	, e (a' e)	57.29	5	n'	17000 •K	0.0011 -0.0 <sub>6</sub> 37	4
dt 25	0.8525 0.8488	2	ΔHv/T <sub>e</sub>	19.30	5	<b>.</b>		- 6	$\vdash$
	0,8710	4	d 155 to	92.24	5		ce tension /cm. 20°C	29.74	5
ь	-0.0 <sub>3</sub> 74	4	e 295 °C	0.1184 91.88	5	*	30	28.73	5
Ref. Inde	1 h		e'   155 °C	0.1160	5		40	27.74	5
n <sub>D</sub> 20°0	1.4845 1.4824	2 2	d <sub>c</sub> g/ml	0.271	5	Para	20°C		
30	1,4800	4	vc ml/g tc °C	3.689	5		30		1
"C"	0.7460	4		453.5 14897.	5		40 Speed	519.1	5
MR (Obs.		2	P <sub>c</sub> mm	14071.	-		L, 1, %/wt.	317.1	-
MR (Calc.   (nD-d/2)	63.251 1.0564	5 2	25°C	1.0000	5	Exp.	u,		
Dielectric		5	30 mm BP	1.0000 0.9267	5			142.	2
A 155 to		5	t_	0.9025	5	Flash Fire	Point C		
B (320 °C		5	t <sub>c</sub>	0. 246	5	M. S			
С	180.	5	ΔHc kcal/m ΔHf	1929.50	2	Ultra	v.		
A*  155 to B*  300 °C		5	ΔFÍ		1	X-Ra Infra	y Dif.		
K Co	=  , ,	ا ر ا	Viscosity				ility in +		
t to	-1		centistokes 7 20 °C	2.99	2	Acet		<b>80</b>	
			7 20 °C	2.07	2	Carl Ben	on tet.	•	
A'   25 to		5	60 80	1.539	2	Ethe		80	ł
B'   155 °C	2126.3 201.	5	B <sub>v</sub> 30 to	1.190	2		ptane	<b>∞</b>	1
A'* 25 to	<del></del>	5	A   90 °C	664.89 Z.19306	4	Etha Wate		<b>«</b> 0	
B'* 155 °C		5	(B <sup>V</sup> )  100 to	663, 48	4	Wate	er in		
Ac  320 to	7.85374	5	(A <sup>V</sup> )  160 °C	Z. 20308	4	Visco	sity		
Bc tc C	2690. 277.	5	c <sub>p</sub> liq. *K				tokes		
Cryos. A	211.	-	c <sub>p</sub> vap300°K	0 22645	2		10 <b>0°C</b>	0.952 0.86	2 2
consts. B			c <sub>p</sub> vap300°K	0. 33665	2		150	0.59	2
te °C F	295.22	5	c <sub>v</sub> vap.						
$T_R = 0.0$	B1 T <sub>c</sub>		***			gra	ms/100 gra	ms solven	t
REFEREN	CES: 1-Dow	2-A	PI 3-Lit. 4-	Calc, from de	t. da	ta 5-0	alc. by for	mula	
SOURCE:		PI	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,						
PURIFICA	TION:	\PI							
	JRE REFERE	NCE	5:						
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No. n-Nonylbenzene STRUCTURAL FORMULA NAME 1-Phenylnonane C9H19 Molecular C<sub>15</sub>H<sub>24</sub> Ref. Molecular Weight 204.342 Mole % Pur Ref Ref. Ref. 2 -24 F, P. dt/dP to F.P. 100% °C/mm <u>•K</u> g 25°C 2291.0 B. P. \*C h BP 0.0613 5 760 mm 282.0 203.6 2 <sup>t</sup>e 0.0363 5 ſ١ to 100 g' •ĸ 30 168.5 30 mm 0.8830 5 5 10 141.5 h' AHm cal/g 96. 300 to -0.0163 m AHv cal/g Pressure 600 °K 0.0014 n 25°C 86.97 0.0043 mm 25°C -0.0654 4 o 30 mm 71.62 5 t<sub>e</sub> 1472. 5 BP 59.04 5 Density 700 to 0.0905 m 4 5 55.80 t (d, e) g/ml 20°C n' 1000 °K 0.0011 0.8558 5 55.39 -0.0<sub>6</sub>38 4 0.8522 2 dt4 AHV/Te 19.39 5 30 0.8486 4 Surface tension d 165 to 90.28 5 0.8702 dynes/cm. 20°C 29.85 e \_315 •c 0.1108 89.64 5 Ъ -0.0372 4 ď٠ 30 28.86 5 to ı 25 5 40 27.89 5 Ref. Index 165 0.1070 5 •' °C 20°C 1.4838 (P) 2  $\mathbf{n}_{D}$ d<sub>c</sub> Parachor g/ml 0.269 5 25 1.4817 2 20°C ml/g 3.719 5 30 1.4781 4 c 30 •c 5 tc 467.5 40 "C" 0.7434 4 Pc mm 13956. 5 Sugd. 558.1 5 68.29 MR (Obs.) 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 67.869 25°C 5 1.0000 (nD-d/2)u. 1.0559 30 mm 1,0000 Dispersion 5 139. 2 Dielectric 2.202 5 BP 0.9238 5 Flash Point °C t<sub>e</sub> 0.8993 5 165 to 7.19041 Fire Point tc 0.235 <u> 330 °C</u> 1991.0 M Spec. 5 C 180. AHc kcal/m 2076.43 2 Ultra V. ΔHf A\* | 165 to 1.7956 X-Ray Dif. ΔFf B+ 325 °C 1898.6 Infrared ĸ Viscosity Solubility in c centistokes Acetone Carbon tet. ا ا ا to 20 3.66 2 •c 00 40 2.47 2 Bensene 1.800 œ 60 2 25 to 7.5503 Ether œ 80 1.370 2 B' [165 °C 2249.8 n-Heptane œ ₽v C' 5 ١ 202. 30 707.9 4 Ethanol 80 AV | 90 •c Z. 1324 Water A1# 25 to 2.1508 5 Water in B'# 165 °C 5 (BV) 100 2149.8 to 676.90 4 (A<sup>V</sup>)|160 Viscosity Ac | 330 to 7.9653 5 °C Z. 22006 Bc tc\_C centistokes 2863. liq. •ĸ 1.082 Cc 282. 100°C 2 110 0.970 2 Cryos. A. cp vap.300°K 0.34046 2 150 0,660 2 consts. B. 0.43775 vap. te °C F 314.95 5  $T_{\mathbf{R}} = 0.82 \, T_{\mathbf{c}}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API API **PURIFICATION:** LITERATURE REFERENCES:

TABLE I. ALKYL AND HALO BENZENES

							No. 95		
NAME	n-Decylbenzene					STRUCTURAL FORMULA			
	l -Phenyld	ecan	e			C10H21			
Mole % Pur.	Ref. Molecular C16H26 Molecular Weight 218.368								
Ref. Ref. Ref.									
F. P. °C F. P. 100%	-14.38	2	dt/dP °C/mm 25°C	6155.8	5	f to g*K			
B. P. °C 760 mm 100	300. 220.	2 5	BP t <sub>e</sub>	0.0625 0.0360	5 5	f'   to g'  *K			
30 10	184. 156.	5	30 mm	0.9087	5	h'			
1	109.	5	ΔHm cal/g			m   300 to	-0.0146	4	
Pressure mm 25°C t <sub>e</sub>	0.0015 1518.	5	ΔHv cal/g 25°C 30 mm BP	85.43 69.70 57.67	5 5 5	n   1_600_•K	0.0014	4	
Density g/ml 20°C d <sup>t</sup> 25 4 30	0.85553 0.85189	2 2	t <sub>e</sub> t <sub>e</sub> (d, e)	54.34 54.03	5	m' 700 to n' 1000 °K o'	0.0011	4 4	
a b	0.84825 0.87009 -0.0 <sub>3</sub> 73	4 4	ΔHv/T <sub>e</sub> d 185 to e 335 °C	19.50 88.70 0.1034	5	Surface tension dynes/cm. 20°C 30		5	
Ref. Index n <sub>D</sub> 20°C 25	1.48319 1.48112	2 2	d' 25 to e' 185 °C d g/ml vc ml/g	87.91 0.0991	5	Parachor [P] 20°C		5	
"C"	0.7465	4	t <sub>c</sub> *C	480.7 12912.	5 5	30 40 Sugd.	597.1	5	
MR (Obs.) MR (Calc.) (nD-d/2)	72.920 72.487 1.05542	2 5 2	PV/RT 25°C 30 mm	1.0000	5	Exp. L.1.%/wt. u. Dispersion	136.6	2	
Dielectric	2.200	5	BP	0.9230	5	Flash Point C			
A 185 to B 345 °C C	7.27177 2107.7 180.	5 5 5	te tc ΔHc kcal/m	0.8964	2	Fire Point  M. Spec.			
A* 185 to B* 345 °C K	1.8937 2012.2	5 5	ΔHf ΔFf Viscosity			Ultra V. X-Ray Dif. Infrared			
c t <sub>k</sub> to t <sub>x</sub> °C	7,6368	5	rentistokes 7 20 °C 40 60	4.44 2.92 2.09	2 2 2	Solubility in + Acetone Carbon tet. Benzene Ether	&0 &0 &0 &0		
B' 185 °C C' A'* 25 to		5 5	B <sup>V</sup>   30 to A <sup>V</sup>   90 °C	1.566 748.3 Z.07607	4 4	n-Heptane Ethanol Water	&C &C		
B'* 185 °C		5	(B <sup>V</sup> )  100 to	705.98	4	Water in			
Be te C	_		(A <sup>V</sup> )  160 °C c <sub>p</sub> liq. °K	Σ. 19509	4	Viscosity centistokes 100°C	1.222	2	
Cryos. A° consts. B°			c <sub>p</sub> vap.300°K	0.34373 0.44146	2 2	110 150	1.09 0.730	2	
t <sub>e</sub> °C F T <sub>R</sub> = 0.8	335, 25	5	c <sub>v</sub> vap.	L	<u> </u>	+ ===== (100			
		2 ^	DI 3-144 4	Cale from de		grams/100 gra ata 5-Calc. by for			
	E3: 1-DOM	AF		Caic, from de	. a	ita 5-Caic, by for	111/41#		
SOURCE:	PION.	AF							
PURIFICAT						· · · · · · · · · · · · · · · · · · ·			
LITERATURE REFERENCES:									
l									

No. 96 n-Undecylbenzene STRUCTURAL FORMULA NAME l-Phenylundecane C11H23 Molecular C17H28 Mole Ref. Molecular % Pur Formula Weight 232, 394 Ref. Ref. Ref. -5 2 dt/dP to F.P. 100% °C/mm g •ĸ 25°C 15222. B. P. °C h ВP 0.0635 5 760 mm 316. 2 f 0.0357 5 to ŧ, 100 234. 5 g' •ĸ 197. 30 30 mm 0.9308 5 5 10 169. h' ΔHm cal/g 121. 300 to -0.0123 m AHv cal/g Pressure 0.0014 \_600 °K 25°C n 83.73 5 mm 25°C 0.0360 -0.0654 4 30 mm o 5 67.82 1525. t<sub>e</sub> 5 BP 56.26 5 0.0971 700 to 4 Density m' 52.94 5 t (d, e) 0.0011 11000 °K g/ml 20°C n' 0.8553 5 52.63 -0.0637 ٥' 4 0.8517 2 dt4 AHV/T 19.64 5 30 0.8481 Surface tension 195 5 to 87.05 0.8697 dynes/cm. 20°C 30,04 <u> 350</u> **℃** 0.0974 5 -0.0372 4 29.04 5 ď 30 86, 04 25 5 1 28,07 5 40 Ref. Index •' 195 0.0923 20°C 1.4828 [P] Parachor d g/ml v ml/g 0.265 5 25 1.4807 2 20°C ml/g 3.778 5 30 1.4784 ic. 4 30 •c 5 492.3 40 "C" 0.7443 5 P<sub>c</sub> mm 12059. 5 Sugd. 636.1 5 MR (Obs.) 77.57 2 PV/RT Exp. L.1.%/wt. 77.105 MR (Calc.) 5 25°C 1.0000 5 (nD-d/2) u. 1.0552 2 30 mm 1,0000 Dispersion 2 134. Dielectric 0.9217 2.199 5 BP 5 Flash Point °C t. 0.8949 5 195 to 7.34672 Fire Point 0.226 5 tc 2215.1 1375 °C 5 M Spec. Ultra V. C AHc kcal/m 2370,27 180. 5 ΔHf A\* | 195 to 1.9853 5 X-Ray Dif. ΔFf 2116.9 B\* 360 °C Infrared ĸ Viscosity Solubility in centistokes c Acetone Carbon tet. 20 °C to 5.34 2 •c 40 3.43 2 Bensene 60 2 2.41 A' 25 to 7,7165 Ether 80 1.779 B' (195 °C 2503.0 5 n-Heptane 204 5 30 788.49 Ethanol AV | 90 ·c Z. 01777 A1# 25 4 Water 2.3523 5 Water in (BV) 100 B'\* 195 °C 2397.5 to 743.02 (AV) | 160 Acl Viscosity •c 2.14737 Bc •c centistokes cp liq. •ĸ 100°C 1.371 110 1.22 Z Cryos, A\* c<sub>p</sub> vap.300°K 0.34661 2 150 0.80 consts. B. 400 0. 44467 c, vap. t. .C 353, 29 5 grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

No. 97 n-Dodecylbenzene NAME STRUCTURAL FORMULA l-Phenyldodecane C12 H 2 5 Molecular C<sub>18</sub>H<sub>30</sub> Mole Ref. Molecular Weight 246,420 % Pur. Formula Ref. Ref Ref. 2 dt/dP F.P. \*C F.P. 100% ſ to °C/mm g ٠Ķ 36477. 25°C 5 B. P. °C h 0.0643 ВP 5 760 mm 331. 2 0.0354 ſ t, to 100 5 248 g' •<u>к</u> 30 210. 5 30 mm 0.9508 5 10 181. 5 h' AHm cal/g 132. 5 300 to m -0.0103 ΔHv cal/g 0.0014 Pressure 600 °K n 82.09 5 25°C mm 25°C 0.0324 5 ٥ -0.0654 4 30 mm 66.09 1600. 5 t<sub>e</sub> BP 54.98 m' 700 to 0.0978 Density 51.68 5 te (d, e) 0.0011 -0.0<sub>6</sub>37 n' 1000 °K g/ml 20°C 0.8551 5 2 51.38 ۰' 25  $\mathbf{d_{4}^{t}}$ 0.8516 AHv/Te 19.79 5 30 0.8481 4 Surface tension 210 to 85.43 0.0920 5 5 5 0.8691 4 a dynes/cm. 20°C 360 °C -0.037 Ъ 4 30 29.14 28.19 84, 25 40 5 Ref. Index e' i 210 °C 0.0864 5 1.4824 <sup>n</sup>D 20°C Parachor [P] 0,263 5 d<sub>c</sub> g/ml 1.4803 2 25 20°C vc ml/g tc °C 3.798 5 30 1.4782 4 30 503.6 5 40 0.7439 4 "C" P<sub>c</sub> mm 11383. 5 Sugd. 675.1 5 MR (Obs.) 82.21 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 81.723 5 25°C 1.0000 5 (nD-d/2) 1.0549 2 30 mm 1,0000 Dispersion 132. 2 Dielectric 2.198 5 ВP 0.9211 Flash Point C 0.8940 A 210 to 7.41934 5 Fire Point 2319.2 B [385 °C] 5 M. Spec. С 180. 5 AHc kcal/m 2517, 19 2 Ultra V ΔHf A# 210 to 2.0722 5 X-Ray Dif. ΔFf B\* 380 °C 2217.9 Infrared ĸ Viscosity Solubility in centistokes Acetone to C 20 °C 6.39 2 Carbon tet. 40 4.06 ليكا 2 Bensene 2.76 60 2 A' | 25 to 7,7937 Ether 2. 01 80 B' 210 °C 2620.6 5 n-Heptane B<sup>V</sup> | 50 to A<sup>V</sup> | 105 °C C' 205. 5 795.64 Ethanol Z. 05305 Water A'\* 25 to B'\* 210 °C 2.44602 5 (B) 105 to Water in 2512.7 774.13 Acl (AV) 160 °C Viscosity Z. 11015 Bc centistokes <sup>t</sup>c\_ •c c<sub>p</sub> liq. 100°C 1.531 2 Cc 2 1.350 110 cp vap.300 K Cryos. A. 0.34920 2 150 0.870 2 consts. B. 400 0.44753 c, vap. •c 370, 21 5 grams/100 grams solvent 5-Calc. by formula REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det. data SOURCE: API **PURIFICATION:** API LITERATURE REFERENCES:

No. 98 NAME n-Tridecylbenzene STRUCTURAL FORMULA l-Phenyltridecane C13 H27 Molecular C19H32 Molecular Mole Ref. Weight 260.446 % Pur Ref. Ref. Ref. F.P. °C 10. 2 dt/dP ſ to F.P. 100% \*C/mm <u>°K</u> g 25°C 89602. 5 B. P. \*C h BP 0.0652 760 mm 5 346. 5 t<sub>e</sub> 5 ſ١ 0.0363 to 100 262. 5 g' •K 30 223. 5 30 mm 0.9702 5 10 194. 5 h! AHm cal/g 143. -0.0086 300 to m ΔHv cal/g Pressure 1\_600 °K 0.0014 n 25°C 80.69 5 mm 25°C 0.0494 -0.0654 4 0 30 mm 64.62 1642. 5 t<sub>e</sub> 53.99 ВP 5 Density 700 to 0.0989 4 m' te te (d, e) 50,63 5 11000 °K g/ml 20°C 0.0011 0.8550 'n 50.43 5 0 -0.0<sub>6</sub>38 4 0.8515  $\mathbf{d_4^t}$ 25 2 ΔHv/Te 19.97 5 30 0.8480 4 Surface tension 225 0.8690 -0.0<sub>3</sub>7 d 83.95 5 8 4 dynes/cm. 20°C 30,20 <u>•с</u> 0.0866 e di <u>l 380</u> 5 ь 30 29.22 5 25 to 82.72 5 1 40 28.27 5 Ref. Index e' 225 0.0811 5 d g/ml vc ml/s n<sub>D</sub> 20°C 1.4821 [P] Parachor 0. 262 3. 820 5 25 1.4800 2 20°C 30 1.4779 4 30 51**3**.7 •c 5 ŧč "C" 40 0.7436 4 Pç 5 5 mm 10190. Sugd. 714.1 MR (Obs.) 86.85 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 86.341 25°C 1.0000 5 (nD-d/2) 1.0546 2 30 mm 1.0000 5 Dispersion 130. 2 Dielectric 2.197 5 ВP 0.9221 5 Flash Point °C 0.8938 T225 to 7.49437 te 5 Fire Point 5 tç 0.206 B 405 °C 2626.7 5 M Spec. 180. 5 2664.12 C AHc kcal/m Ultra V. A Hf A\* | 225 to 2.1594 5 X-Ray Dif. ΔFf B+ 390 °C 2321.9 Infrared K Viscosity Solubility in centistokes t<sub>x</sub> | Acetone to 20 °C 7.60 2 •c Carbon tet. 4.65 40 2 Benzene 60 3, 15 2 A' | 25 to 7,87345 5 Ether 2742.1 80 2,26 2 B' [225 °C 5 n-Heptane C١ 205. 50 to 831.92 Ethanol 4 AV | 105 °C A1# 25 to 2.54109 2,00154 4 Water 5 Water in B'# 225 °C 2631.8 (B<sup>v</sup>) | 105 to 805, 22 4 Ac| (A<sup>V</sup>)| 160 °C Viscosity Z. 07479 4 Bc •c centistokes c<sub>p</sub> liq. Сc 1.701 100°C 2 110 1.50 2 Cryos. Aº cp vap.300°K 0.35147 2 150 0.95 consts. B 2 0.45007 400 c, vap. te °C 387, 12 5  $T_{\mathbf{R}} = 0.86 \, T_{\mathbf{c}}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det, data 5-Calc, by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

TABLE I. ALKYL AND HALO BENZENES

NAME	n-letrad	ecylb	enzene		ļ	ST	RUCTURAL	FORMUL	A
	l - Phenyl	tetra	decane				<b>^</b> • "		
Mole % Pur.	Ref. Mo	lecula mula		Molecular Weight 274.47	,,		C14 H	29	
		Ref.		T	Ref.				Ref
F. P. °C	16.	2	dt/dP			ſ	to		
F.P. 100%			°C/mm	5		g	°K_		
B. P. °C	350	١, ١	25°C <b>B</b> P	1.99×10 <sup>5</sup> 0.0658	5	h			
760 mm 100	359. 274.	2	te	0.0347	5	f'	to		
30	235.	5	30 mm	0.9866	5	g'	' <u>*</u> K		
10 1	204. 153.	5	ΔHm cal/g			<u>h'</u> !			ļ
Pressure		$\vdash$	ΔHv cal/g			m n	300 to	-0.0070 0.0014	
mm 25°C	0.041	5	25°C 30 mm	79.11 63.09	5 5	اۃ	- <u>0-0</u> -1-	-0.0653	4
t <sub>e</sub>	1679.	5	BP	52.88	5	m'	700 to	0,0986	├
Density	0.0540		t <sub>e</sub> ,	49.54	5	n'	1000 °K	0.0980	
g/ml 20°C	0.8549 0.8514	2 2	te (d, e)	49.37	5	٥'		-0.0 <sub>6</sub> 38	4
d <sub>4</sub> 25 30	0.8479	4	ΔHv/T <sub>e</sub>	20.14	5	Sur	face tension		
a	0.8689	4	d 235 to e 390 °C	82.34 0.0821	5		es/cm. 20°C	30.27	5
b	-0.037	4	d'	81.02	5	8	30 40	29.30 28.34	5
Ref. Index	1.4818	2	e' 235 °C	0.0764	5	Dav	achor [P]	20.34	-
25	1.4797	2	d <sub>c</sub> g/ml	0.261	5		20°C		
30	1.4776	4	vc ml/g tc °C	3.833 521.4	5		30 40		ļ
"C"	0.7432	4	Pcmm	9100.	5			753.1	5
MR (Obs.)	91.49	2	PV/RT		$\vdash$	Exp	. L.1.%/wt.		
MR (Calc.) (nD-d/2)	90.959 1.0543	5 2	25°C	1.0000	5		u.		
Dielectric	2,196	5	30 mm BP	1.0000 0.9226	5 5	L	persion	129.	2
A 235 to	7,56143	5	t te	0.8941	5		sh Point °C e Point		
B   410 °C	2522.8	5	с	0, 193	5		Spec.		+
<u>c</u>	180.	5	ΔHc kcal/m	2811.04	2	Ult	ra V.		
A* 235 to B* 410 °C	2. 2384 2414. 6	5	ΔFf				Ray Dif. ared		
K	2111.0		Viscosity			⊢-	ubility in +	ļ	+-
t, to		1	centistokes	0.00			etone		
t <sub>k</sub>   to t <sub>x</sub>   *C			<b>7</b> 20 ℃	8.98 5.36	2		rbon tet.		
A'   25 to	7.94474	5	60	3.57	2		nzene her		İ
B'   235 °C		5	B <sup>v</sup> 50 to	2,53	2		Heptane		1
C'	206.	5	B 50 to A 105 °C	865.10 3.95632	4		hanol ater		
A'* 25 to B'* 235 °C	2.62769 2738.3	5	(B <sup>V</sup> )  105 to	829.69	4		ater in		
Acl to		†	(A <sup>V</sup> )  160 °C	2.05232	4	Vis	cosity		İ
Bc tc °C	}		c liq. °K		Ť		tistokes		_
Cc — —	<b>_</b>	<u> </u>	ii				100°C 110	1.881	2 2
Cryos, A° consts, B°			c <sub>p</sub> vap.300K 400	0.35355 0.45236	2 2		150	1.03	2
t <sub>e</sub> °C F	401,78	5	c vap.	0,45236	*				
$T_R = 0.8$		1 -	1	_L	<u> </u>	+ 0	rams/100 gra	ms solver	 nt
	CES: 1-Dow	2-A	PI 3-Lit. 4	-Calc. from de	et. da		-Calc. by for		
SOURCE:		AF							
PURIFICAT	rion:	AF	PI						
	RE REFERE								
			<del>-</del> -						

No. 100 n-Pentadecylbenzene STRUCTURAL FORMULA NAME l-Phenylpentadecane C15 H31 Mole Ref. Molecular Molecular C21H36 Formula Weight 288, 498 Ref. Ref. 2 22. dt/dP to F.P. 100% \*C/mm g <u>•</u>K 25°C 4.83×10 B, P. °C h BP 0.0665 5 760 mm 37**3**. 2 0.0343 5 ſ١ to 100 287. 5 ŧ, <u>•</u>K g' 247. 5 30 5 30 mm 1.0036 216. 5 10 h' AHm cal/g 163. 5 300 to -0.0055 m ΔHv cal/g 0.0014 Pressure 600 °K 25°C n 77.92 61.90 mm 25°C 0.0416 -0.0654 4 a 30 mm 5 t<sub>e</sub> 1720. 5 BP 52.11 5 700 to 0.1012 Density m' 1 4 5 48.74 te (d, e) g/ml 20°C 0.8548 0.8513 n' 11100 °K 0.0011 2 5 48.65 0 -0.0638 4 2 ď4 AHV/T 20.36 5 30 0.8478 4 Surface tension Т 245 81.08 to 5 0.8688 -0.0<sub>3</sub>7 44 dynes/cm. 20°C 30.34 1 415 1 25 •c 0.0777 5 Ъ 30 29.36 5 to 79.73 1 40 28,40 5 Ref. Index e' 245 •c 0.0722 5 1.4815<sup>‡</sup> 1.4794<sup>‡</sup> 20°C [P]  $\mathbf{n}_{\mathbf{D}}$ 2 Parachor 0,260 d<sub>c</sub> g/ml 5 25 2 v ml/g 20°C 5 30 3.847 1.4773 4 30 530.4 5 40 "C" 0.7429 4 P<sub>c</sub> mm 8050. 5 Sugd. 792.1 5 96,13# MR (Obs.) 2 PV/RT Exp. L. 1. %/wt. MR (Calc.) 95.577 5 1.0541 25°C 1.0000 5 (nD-d/2) u. 2 30 mm 1.0000 Dispersion 127. 2 Dielectric 2.195 0.9241 5 BP 5 Flash Point °C t<sub>e</sub> 0.8951 5 245 to 7.63586 5 Fire Point 0.178 5 2629.5 1420 °C 5 M Spec. C AHc kcal/m 2957.96 2 180 5 Ultra V ΔHf A\* 245 to 2.3220 5 X-Ray Dif. ΔFf B\* 420 °C 2517.2 Infrared ĸ Viscosity Solubility in c centistokes Acetone tk | t<u>x |</u> to 20 °C 10.54 Carbon tet. °C ž 40 Benzene 2 60 4.02 A' | 25 to 8,02386 Ether 80 2.81 2 B١ L245 °C 2971.3 n-Heptane вŸ 50 207. 5 896.13 Ethanol A | 105 °C A'+ A'\* 25 to B'\* 245 °C 3.91476 4 Water 2.72051 2856.7 5 Water in (BV) 105 to 851.15 (A<sup>V</sup>)| 1<u>60</u> Ac to Viscosity °C Z. 03411 t<sub>c.</sub> Bc | centistokes cp liq. •ĸ 100°C 2.07 110 1.80 2 Cryos. A. c<sub>p</sub> vap.300°K 0.35539 2 150 1.11 consts, B° 0.45442 c. vap. t. °C 417.58 # for undercooled liquid grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

TABLE I. ALKYL AND HALO BENZENES

1 - Phe	nylhexad				STRUCTURA	AL FORM	ULA
Ref.		de <b>ca</b> ne			<b>^</b> .		
سلسا	Molecul	ar C H	Molecular Weight 302.52	,,		16 <sup>H</sup> 33	
				Ref.			Rei
	Ref.		<del> </del>	Kei.		<del></del>	Ne.
27.	2	dt/dP °C/mm 25°C	1.05×10 <sup>6</sup>	5	g	to •K	
85. 98.	2 5	BP t	0.0670 0.0339	5	h   f'	to	+
58.	5	30 mm	1.0177	5	g' '	<u>•K</u>	
26. 73.	5 5	ΔHm cal/g			h'	75 0 0	20/ 4
		ΔHv cal/g	7/ 53	ا ۽ ا	m   300 n   600		096 4 014 4
0.057		25°C 30 mm	76.53 60.61	5	0   -93%	-0.0	
56.	5	BP	51.23	5	m' 700		
0.854	7 2	t <sub>e</sub> t <sub>e</sub> (d, e)	47.84 47.84	5	n'   11000	•K 0.0	011 4
0.851	.2"   2	ΔHv/T <sub>e</sub>	20.55	5	0'	-0.0	637 4
0.847	7 4	<del></del>	79.58		Surface tensi	on	
0.868		d 260 to e 430 °C		5	dynes/cm. 20	°C 30.4	
-0.037	4	d'   25 to	78.24	5	8 30 40		
1,481	3 2	e'   260 °C	0.0684	5	Parachor [P		<del>-   -</del>
1.479	12'   2	dc g/ml	0.259	5 5		o•c	
1.4//	1 4	vc ml/g tc *C	3.861 537.0	5	30		
0.742		P <sub>c</sub> mm	7190.	5	40 Su	ngd. 831.1	-5
00.77#	اءا	PV/RT	1175	1	Exp. L.1.%/		<del>-   -</del>
00. 195 1. 053	9≠ 5   19≠ 2	25°C	1.0000	5	u.	ł	
2.194		30 mm BP	1.0000 0.9258	5	Dispersion	126. ≠	2
7,701		ll t	0.8961	5	Flash Point 6 Fire Point	С	
23.7	5	¹c	0.166	5	<u> </u>		-+-
80.	5	ΔHc kcal/m	3104.89	2	M. Spec. Ultra V.		
2.397		ΔFf			X-Ray Dif.		ł
07.8	5	Viscosity	†		Infrared	+	
		centistokes			Solubility in Acetone	'	
		7 40 °C	7.03 4.52	2 2	Carbon tet.		
8.093	37 5	80	3.12	2	Benzene Ether		
8.093 77.7	5	100	2.27	2	n-Heptane		
08.	5	B <sup>V</sup>   50 to A <sup>V</sup>   105 °C	929.87	4	Ethanol		
2.804		(B <sup>v</sup> )  105 to	3.86442	4	Water Water in	İ	
61.2	5	11	887.55	4			
		(A <sup>V</sup> )  160 °C	3.97830	4	Viscosity centistokes		
		c <sub>p</sub> liq. *K			110°C	1.9	
		c <sub>p</sub> vap.300°K	0.35706	2	150	1.19	9 2
		P 400 c vap.	0.45629	2			-
31.1	5		.l	L	L		
oled li					grams/100		ivent
: 1-Do			Calc. from de	t. da	ta 5-Calc, by	formula	
<b>V</b> :	AP	<b>'</b> I					
REFE	RENCE	S:					
-		. AF	API : API REFERENCES:	API	API	API	API

No. 102 n-Heptadecylbenzene STRUCTURAL FORMULA NAME l-Phenylheptadecane C17 H35 Molecular C23H40 Molecular Weight 316.550 Mole % Pur Formula Ref. Ref. 32. 2 dt/dP to F.P. 100% °C/mm g <u>•</u>K 9. 3×10<sup>6</sup> 25°C B. P. \*C h 0.06747 BP 76'0 mm 397. 2 0.03387 5 ſ١ te 100 309.5 to 5 g' •ĸ 30 269.5 5 30 mm 1.0110 5 10 238.5 5 h' ∆Hm cal/g 186. m to ∆Hv cal/g Pressure °K n 25°C 87.69 mm 25°C 0.0668 ٥ 30 mm 60.97 5 t<sub>e</sub> 1786. 5 BP 50.32 5 m to Density 5 46.60 te te (d, e) n' ۰ĸ g/ml 20°C 5 0.85467 46, 34 0.8512 ٥' Ž  $d_4^t$ AHv/T 20,55 5 30 0.8478 4 Surface tension Т 270 83.49 5 0.8682 -0.0<sub>3</sub>68 30.45 dynes/cm. 20°C 1 430 1 25 •c 0.0836 ь 30 29.49 5 to 90.42 40 28.56 5 270 Ref. Index e' 0.1093 \*C 5 20°C 1.4810 [P] n<sub>D</sub> 2 Parachor d<sub>c</sub> g/ml 25 1.4790 20°C tc °C ml/g 30 1.4769 30 4 545.6 5 40 "C" 0.7423 4 Pc mm 7973. 5 Sugd. 870.1 5 105,42# MR (Obs.) 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 104.809 25°C 1.0000 1.0537<sup>‡</sup> (nD-d/2)u. 2 30 mm 1.0000 5 125. Dispersion 2 Dielectric 2.193 5 BP 0.9247 Flash Point °C t<sub>e</sub> 0.8945 5 7.55602 270 to Fire Point 4 t<sub>c</sub> 2580.7 M Spec. C AHc kcal/m 155. 5 Ultra V. ΔHſ A\* 270 to 2.27692 5 X-Ray Dif. ΔFf B+ 450 °C 2474.5 Infrared ĸ Viscosity Solubility in centistokes Acetone t<sub>x</sub> | to Carbon tet. •c Benzene A' I 25 to 7,9390 Ether 270 °C 2916.1 n-Heptane B<sup>V</sup> 181.7 5 to Ethanol ÃV Water A1+ •c A'\* 25 to B'\* 270 °C 2.6900 2816.9 5 Water in (BV) to Ac| to (AV) °C Bc cp liq. ۰ĸ Cc Cryos. A. •ĸ c<sub>p</sub> vap. consts. B. c, vap. te °C 444.6 # for undercooled liquid glams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

TABLE I. ALKYL AND HALO BENZENES

NAME _	n-Octa	adecylber	nzene			STRUCTURAL	FORMUI	LA
	l-Phe	nyloctad	ecane			С 18 Н3	17	
Mole % Pur.	Ref.	Molecula Formula		Molecular Weight 330,57	,6			
		Ref.			Ref.			Ref
F. P. °C	36.	2	dt/dP			f to		1
F.P. 100%		-+-	°C/mm 25°C	1.97×10 <sup>7</sup>	5	g <u>*K</u>		1
B. P. °C 760 mm	408.	2	BP	0.06812	4 5	h		+
100 30	319.5 279.0	5	t <sub>e</sub> 30 mm	0.0337	5	f' to		
10	247.5	5	ΔHm cal/g	1.0255		h'		
1	194.	5	ΔHv cal/g	<del> </del>		m to		
Pressure mm 25°C	0.063	2 5	25°C	86.02	5	n •K		
t <sub>e</sub>	1815.	5	30 mm BP	59.58 49.27	5 5		ļ	+
Density	0.854	ζ <b>#</b> 3	t <sub>e</sub> t <sub>e</sub> (d, e)	45.52	5	m' to		
g/ml 20°C t 25	0.851	67 2 1 2		45.35 20.61	5	o'		
d <sub>4</sub> 25 30	0. 647	0 3	ΔHv/T <sub>e</sub>	+	5	Surface tension		1
a b	0.868 -0.0 <sub>3</sub> 7		_e445_ °C	0.0799	5	dynes/cm. 20°C	30.51 29.52	5
Ref. Index			d'   25 to e'   280 °C		5	40	28.56	5
n <sub>D</sub> 20°C	1.480 1.478	9 2	d <sub>c</sub> g/ml	0.1041	-	Parachor [P]		
25 30	1.478	8 2 2 7 4	v <sub>c</sub> mi/g			20°C 30		
"C"	0.742	2 4		549.3	5	40	000	_ ا
MR (Obs.)	110.06≠		P <sub>c</sub> mm PV/RT	7207.	5		909.1	5
MR (Calc.) (nD-d/2)	109.427 1.053	5 ≠ 5 2	25°C	1.0000	5	Exp. L.1.%/wt.	1	
Dielectric	2. 193		30 mm BP	1.0000 0.9247	5	Dispersion	124.	2
A 280 to	7, 603		t_	0.8936	5	Flash Point °C Fire Point		
B   470 °C	2658.9 155.	4 5	tc AHc kcal/m	-		M. Spec.	<u> </u>	+
A*  280 to	2, 336		ΔHf			Ultra V. X-Ray Dif.		
B*  460 °C	2550. 76	5	ΔFf		1-	Infrared		Ì
K c			Viscosity centistokes			Solubility in +		
t <sub>k</sub> to			η °c			Acetone Carbon tet.		
t <sub>x  </sub> °C	7 000	54 5			1	Benzene	-	
A'   25 to B'   280 °C	7.989 3004.5	5	<del>- ,</del> ,		<del> </del>	Ether n-Heptane		
C'	182.3	5	B <sup>v</sup> to		1	Ethanol Water		
A'* 25 to B'* 280 °C	2, 753 2903, 7	5 5	$\frac{1}{ \mathbf{B}^{v} } - \frac{0}{to}$	-		Water in		
Acl to	10,703.7		(A <sup>V</sup> )  •C					
Bc tc C	_		c <sub>p</sub> liq. °K			1	İ	
Cryos. A*	<del> </del>		l -		1		1	
consts. B.			P		1			
t <sub>e</sub> °C F	457.0	5	c <sub>v</sub> vap.		1			
# for unde	rcooled li	quid				f grams/100 gra		ent
REFERENC	ES: 1-D			-Calc. from d	et. da	ata 5-Calc. by for	rmula	
SOURCE:			PI					
PURIFICAT			PI					
LITERATU	RE REFE	RENCES	<b>3</b> :					

No. 104 NAME STRUCTURAL FORMULA n-Nonadecylbenzene l-Phenylnonadecane C19H39 Ref. Molecular Weight 344,602 Mole Molecular C25H44 % Pur Formula Ref. Ref Ref. 2 40. dt/dP to F.P. 100% °C/mm •ĸ g 4.21x107 25°C B, P. °C 5 h BP 0.06875 4 760 mm 419. 2 ſ١ 0.0335 5 to 100 329.5 5 g °K 30 30 mm 288.5 5 1.0398 5 10 5 256.6 h' ∆Hm cal/g 202. 5 to m AHv cal/g Pressure n •K 25°C 84.50 58.33 mm 25°C  $0.06^{144}$  1844.9o 30 mm 5 te 5 BP 48.34 5 Density to m 44.61 5 te (d, e) •K g/ml 20°C 0.8545 0.8511 n' 2 44.48 5  $\mathbf{d_4^t}$ 2 AHV/Te 20.70 5 30 0.8477 4 Surface tension 290 ď 80.429 5 to 0.8681 -0.0368 dynes/cm. 20°C 30.55 5 e 455 25 <u>•c</u> 0.0766 5 Ъ 29.59 30 5 ă۰ 86.987 to 28.65 5 Ref. Index 40 e' 290 0.0993 •C 5 1.4807 1.4786 20°C (P) n D Parachor d<sub>c</sub> g/ml 25 2 20°C v<sub>c</sub> ml/g 30 1.4766 4 30 •c 557.1 5 ŧ<sub>c</sub> 40 "C" 0.7420 4 Pç 5 6843. 948.1 5 mm Sugd. 114.70<sup>#</sup> MR (Obs.) 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 114.045 1.0000 5 1.0534 25°C (nD-d/2) 2 u. 123.\* 30 mm 1.0000 Dispersion 2 Dielectric 2.192 5 BP 0.9245 Flash Point °C 0.8929 t. 290 to 7,65210 Fire Point t<sub>c</sub> 2738.7 1480 °C M Spec. ΔHc kcal/m 155. 5 Ultra V. ΔHf A\* 290 to 2,3962 5 X-Ray Dif. ΔFf B\* 470 °C 2628.4 Infrared ĸ Viscosity Solubility in centistokes Acetone to Carbon tet. •c Bensene A' | 25 to 8,0411 5 Ether 3094.6 B' [290 °C 5 n-Heptane C' вv 182.9 5 to Ethanol A<sup>V</sup> A'\* 25 2,8170 •c Water 5 Water in (BV) B'\* 290 °C 2992.3 to Ac  $(A^{V})_{1}$ •c Bc •c cp liq. ۰ĸ Cc Cryos. A\* •ĸ vap. consts. B° c, vap. te .C 469.4 for undercooled liquid grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

TABLE I. ALKYL AND HALO BENZENES

						No.	105
NAME	n-Eicosy	lbenz	zene		ı	STRUCTURAL FORMU	LA
	l -Phenyl	eico	sane			C20H41	
Mole % Pur.	Ref. Mo	lecul rmuli		Aolecular Veight 358,62	:8	120 41	
		Ref.			Ref.		Ref.
F.P. *C F.P. 100	44.	2	dt/dP *C/mm	0 40 107		f to g*K	
B. P. *C 760 mm 100	429. 338.7	2 5	25°C BP	8.49×10 <sup>7</sup> 0.06929 0.0333	5 4 5	h   to	+
30 10	297. 2 264. 9	5 5	30 mm	1.0525	5	g'• <u>K</u>	
1	209.	5	ΔHm cal/g			h' to	+
Pressure mm 25°C	0.0 <sub>7</sub> 70 1873.	<b>5</b>	ΔHv cal/g 25°C 30 mm BP	82.96 57.10 47.45	5 5 5	n	
Density g/ml 20°	0.8545 0.8511	2 2	te te (d, e)	43.71 43.66	5 5	m' to o' K	
dt 25 4 30	0.8477	4	ΔHv/T <sub>e</sub>	20.79	5	Surface tension	$\dashv \dashv$
a b	0.8681 -0.0 <sub>3</sub> 68	4	d 295 to e 470 °C d' 25 to	78.87 0.0732 85.33	<b>5</b> 5	dynes/cm. 20°C 30.60 30 29.64 40 28.70	5 5 5
Ref. Inde: n <sub>D</sub> 20° 25 30		2 2 4	d g/ml vc ml/g t °C	0.0950	5	Parachor [P] 20°C 30	
"C"	0.7417	4	`	561.9	5	40	5
MR (Obs. MR (Calc	1 119 442	2 5	P <sub>c</sub> mm PV/RT 25°C	1,0000	5	Sugd. 987.1 Exp. L.1,%/wt.	3
(nD-d/2) Dielectric	1, 0533 <sup>‡</sup>	5	30 mm BP	1.0000 1.0000 0.9254	5	u. Dispersion 122. ≠	2
A 295 to	7. 69708	4	t.	0.8932	5	Flash Point *C Fire Point	
B (500 °C	155.	5	ΔHc kcal/m ΔHf			M. Spec. Ultra V.	
A*  295 to B*  480 °C		5	ΔFf Viscosity			X-Ray Dif. Infrared	
t <sub>k</sub>   -t			centistokes			Solubility in + Acetone Carbon tet.	
A'   25 to B'   295	8.0889	5				Bensene Ether n-Heptane	
C'	183.5	5	B <sup>V</sup> to •C			Ethanol Water	
B'* 295 *	C 3074.6	5	(A <sup>V</sup> )  to			Water in	+
Bc tc			c <sub>p</sub> liq. °K				
Cryos. A consts. B			c <sub>p</sub> vap. *K				
te °C F	480.72 ercooled liquid	5	c <sub>v</sub> vap.	l	<u></u>	grams/100 grams solv	ent ent
<del></del>			PI 3-Lit. 4-0	Calc, from de	t. da	ta 5-Calc. by formula	
SOURCE:			PI				
PURIFICA		^	PI				
LITERAT	URE REFERE	NCE	S:				

No. 106 STRUCTURAL FORMULA NAME n-Heneicosylbenzene l-Phenylheneicosane C21 H43 Molecular C27H48 Ref. Molecular Mole Weight 372,654 % Pur Ref. Ref. Ref. 48 2 dt/dP to F.P. 100% °C/mm •ĸ g 1.73×10<sup>8</sup> 25°C 5 B. P. \*C h BP 0.06981 4 760 mm 439. 347.9 2 t<sub>e</sub> 0.0331 ſ١ to 100 g' •ĸ 30 305.9 30 mm 1.0649 5 273.2 10 5 h! ΔHm cal/g 5 217. to m ∆Hv cal/g Pressure ۰ĸ 25°C 81.54 5 n mm 25°C 0.0734 30 mm o 55.98 5 1901.5 t<sub>e</sub> 5 BP 46.59 5 Density g/ml 20°C m to 42,85 5 te te (d, e) n' •ĸ 0.8545 5 42.85 0.8510 **d**t AHv/Te 20.87 5 30 0.8475 4 Surface tension d 305 to 77.58 5 0.8685 4 dynes/cm. 20°C 30.65 e 480 •c 0.0706 5 ь -0.0370 4 29.65 5 30 đ٠ to 25 83,82 28.69 5 40 Ref. Index e¹ °C 305 0.0910 20°C 1.4804 [P] n<sub>D</sub> Parachor d g/ml 25 1.4783 20°C ml/g 30 1,4762 4 ťc 30 •c 5 564.4 40 "C" 0.7416 4 P<sub>c</sub> mm 1026.1 5723. 5 Sugd. 5 MR (Obs.) 123.98<sup>‡</sup> 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 123.281 1.0532 25°C 1.0000 5 (nD-d/2) 2 u. 121. 30 mm 1.0000 Dispersion 2 Dielectric 2.192 5 BP 0.9254 Flash Point °C 305 to t<sub>e</sub> 0.8932 7.74293 Fire Point tc В <u> 500 °C</u> 2888.1 M Spec. С 155. 5 AHc kcal/m Ultra V. ΔHf A\* 305 to 2.5064 5 X-Ray Dif. ΔFf B+ 500 °C 2772.8 Infrared ĸ Viscosity Solubility in centistokes c Acetone t<sub>x</sub> to Carbon tet. •c Benzene A1 25 to 8.1377 Ether B' 1305 °C 3263.5 n-Heptane  $\mathbf{B}^{\widehat{\mathbf{v}}}$ 184.0 5 to Ethanol ۸V AI# •c Water 25 to 2.9368 Water in (BV) B1# 305 °C 3158.4 to Ac | to (AV) °C Bc cp liq. ۰ĸ Co Cryos. A' c<sub>p</sub> vap. ٩ĸ consts. B° c, vap. te °C 492. for undercooled liquid grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

NAME	n-Docosy	lbenz	ene		i	STRUCTURAL	FORMUL	A
	l-Phenyl	docos	ane			C 22 1	145	
Mole % Pur.	Ref. Mo	lecula mula		Molecular Weight 386.68	10		45	
		Ref		T	Ref.			Rei
F. P. °C	51.	2	dt/dP			f to		T
F.P. 100%			°C/mm			g  •K		
B. P. °C			25°C BP	3.32×10 <sup>8</sup> 0.07026	5 4	h		
760 mm 100	448.	2	te	0.0329	5	f' to		Т
30	356.2 313.8	5	30 mm	1.0759	5	g'° <u>K</u>		1
10	280.7	5	ΔHm cal/g			h'		1
<u> </u>	224.	5	ΔHv cal/g	+	$\vdash$	m to		T
Pressure	0.0.17	ا ۔ ا	25°C	80.08	5	n  K_		1
mm 25°C	0.0 <sub>7</sub> 17	5	30 mm	54.86	5	•		
Density	1	-	BP	45.75 42.04	5	m' to		
g/ml 20°C	0.8544	2	t <sub>e</sub> (d, e)	42.04	5	n'  K_		1
at 25	0.8510	2	ΔHv/Te	20.97	5	o'		$\perp$
4 30	0.8476	4	d 310 to	76, 18	5	Surface tension		T
a	0.8680	4	e   490 °C		5	dynes/cm. 20°C	30.68	5
b	-0.0368	-	d' 25 to	82.27	5	30 40	29.71 28.77	5
Ref. Index	1 4003	2	e'   310 °C	0.0873	5	Parachor [P]	20	Ť
n <sub>D</sub> 20°C	1.4782	2	d <sub>c</sub> g/ml			20°C		
30	1.4761	4	vc ml/g t <sub>c</sub> °C	570.4	5	30		
"C"	0.7414	4	P <sub>c</sub> mm	5467.	5	40 Sugd	1065.1	5
MR (Obs.)		2	PV/RT		+	Exp. L. l. %/wt.		+
MR (Calc.	127.899	5	25°C	1,0000	5	Exp. L.1.76/Wt.	_	
(nD-d/2)	1.0531*	2	30 mm	1.0000	5	Dispersion	120. #	2
Dielectric		5	BP	0.9256 0.8933	5	Flash Point C		1
A 310 to		4	t <sub>e</sub>	0.0733		Fire Point		
B 1.515 °C	2957.2 155.	5	ΔHc kcal/m	+	+	M. Spec.		
A* 310 to		5	ΔHf			Ultra V. X-Ray Dif.		
B*  510 °C		5	ΔFf		<b> </b>	Infrared		
K	_		Viscosity		1	Solubility in +		$\top$
t <sub>k</sub>   -to	-		centistokes り °C			Acetone		
ر <mark>د</mark> در		1	,			Carbon tet. Benzene		1
A'   25 to	8.1823	5				Ether		
B'   310 °C		5	B <sub>v</sub> to	<del></del>	<del>                                     </del>	n-Heptane	İ	
	184.5	5	B to		1	Ethanol Water		
A'* 25 to B'* 310 °C		5	(B <sup>V</sup> )  - to	-	1	Water in		_
Acl to		+	(A <sup>V</sup> )  °C					
Bc tc C					<del> </del>	{		
Cc	_	1	c <sub>p</sub> liq. *K	•	1		ł	1
Cryos. A			c <sub>p</sub> vap. °K				ŀ	
consts. B	'	<u> </u>	<del>-</del>		ł			1
te °C F		5	c <sub>v</sub> vap.		1	<u> </u>	1	
	ercooled liqui					grams/100 gra		nt
REFEREN	CES: 1-Dow			-Calc. from d	et. da	ta 5-Calc. by for	rmula	
SOURCE:		AF	PI					
PURIFICA	TION:	AF	PI					
LITERAT	JRE REFERE	NCE	S:					

TABLE I. ALKYL AND HALO BENZENES

No. 108 STRUCTURAL FORMULA n-Tricosylbenzene NAME 1-Phenyltricosane C23H47 Molecular C29H52 Molecular Weight 400.706 Mole Ref. % Pur Formula Ref. Ref. 54. 2 F.P. dt/dP to F.P. 100% °C/mm g •K 25°C 6.43×10<sup>8</sup> B. P. °C h 0.07070 BP 457. 760 mm 2 0.0327 5 ſ١ to 100 5 ١. 364.5 g† •K 30 321.7 5 30 mm 1.0867 5 10 288,3 5 h' ∆Hm cal/g 5 231. to AHv cal/g m Pressure •ĸ 25°C 30 mm n 78.74 5 mm 25°C 0.0887 a 53.84 5 1953. 5 te BP 44.97 Density to 5 41.29 t (d, e) g/ml 20°C n' •ĸ 0.8544 5 41.35 0.8510 01 2 dt4 AHV/T 5 21.06 30 0.8476 4 Surface tension 320 to 74.93 0.8680 dynes/cm. 20°C 30.72 490 \*C 0.0656 5 -0.0368 5 30 29.75 5 ٦,-80.84 25 40 28.81 5 Ref. Index •' •c 0.0839 320 5 20°C 1.4801 [P] n D 2 Parachor d g/ml v ml/g 1.4781 25 2 20°C ml/g 30 t<sub>C</sub> 1.4760 4 30 \*C 574.3 5 40 "C" 0.7412 4 P<sub>c</sub> mm 5077. 5 1104.1 Sugd. 5 MR (Obs.) MR (Calc.) 133.26<sup>‡</sup> 2 PV/RT Exp. L. 1. %/wt. 132.517 25°C 1.0000 5 1.0530<sup>#</sup> (D-d/2) 119. \* 30 mm 1.0000 2 Dispersion Dielectric 0.9260 2.191 5 BP 5 Flash Point °C t<sub>e</sub> 0.8937 1 320 to 7.82768 Fire Point t<sub>c</sub> 1520 °C 3027.5 M Spec. Ultra V C AHc kcal/m 155. 5 ΔHf A\* 320 to 2.6094 5 X-Ray Dif. ΔFf B\* 510 °C 2907.5 Infrared ĸ Viscosity Solubility in centistokes Acetone Carbon tet. •c Benzene 25 to 8,2278 Ether 1350 € 3421. n-Heptane вv C' 185.0 5 Ethanol •c Water A\*\* 25 to B\*\* 320 °C 3.0489 5 Water in (BV) 3313.4 to Ac | (AV) °C Bc | •c liq. •ĸ c<sub>p</sub> Cc Cryos. A. c<sub>p</sub> vap. •ĸ consts. B° c, vap. t .C 512.3 # for undercooled liquid grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

TABLE I. ALKYL AND HALO BENZENES

<del></del>							No. 109	
NAME	n-Tetrac	osylb	enzene			STRUCTURAL	FORMULA	.
	l-Phenyl	tetra	cosane			C24H49		
Mole % Pur.	Ref. Mo	lecula mula		Molecular Veight 414.73	2		, 	
	-	Ref			Ref.		I	Ref.
F.P. *C F.P. 100	57.	2	dt/dP *C/mm	٥		f to g L		
B. P. °C 760 mm 100 30 10	466. 372.8 329.7 295.9	2 5 5	25°C BP t <sub>e</sub> 30 mm	1.26x10 <sup>9</sup> 0.07111 0.03248 1.0973	5 4 5 5	h   to   to   h'		
1	238.	5	ΔHm cal/g		-	m to		$\neg$
Pressure mm 25°C	0.0 <sub>8</sub> 44 1980.	5	ΔHv cal/g 25°C 30 mm BP	77.51 52.90 44.28	5 5 <b>5</b>	n   - *K		
Density g/ml 20°0 dt 25 d4 30	0.8544 <sup>‡</sup> 0.8510 <sup>‡</sup> 0.8476	2 2 4	t <sub>e</sub> t <sub>e</sub> (d, e) ΔHv/T <sub>e</sub>	40.61 40.71 21.17	5 5 5	n' K		
a b	0.8680 -0.0 <sub>3</sub> 68	5 5	d 330 to e 500 °C d 25 to	73.74 0.0632 79.53	5 5 5	dynes/cm. 20°C	30.75 29.79	5
Ref. Inde: nD 20° 25 30		2 2 4	e' 330 °C  dcg/ml vcml/g tc°C	0.0808 0.2175 4.5972 578.2	5 5 5	40 Parachor [P] 20°C 30	28.84	5
"C"	0.7411	4		4717.	5	40 Sugal	1142 1	5
MR (Obs. MR (Calc (nD-d/2)		2 5 2	P <sub>c</sub> mm PV/RT 25°C 30 mm	1.0000	5	Exp. L.1.%/wt. u. Dispersion	1143.1 118. <sup>≠</sup>	2
Dielectric	2.190	5	BP	0.9266	5	Flash Point *C		-
A 330 to B 1530 °C		4 4 5	te tc AHc kcal/m	0.8945	5	Fire Point M. Spec.		_
A*  330 to B*  525 °C K		5 5	ΔHf ΔFf Viscosity			Ultra V. X-Ray Dif. Infrared		
			centistokes 7 °C			Solubility in Acetone Carbon tet, Benzene		
A'   25 to B'   330 ' C'		5 5 5	B <sup>V</sup> to			Ether n-Heptane Ethanol		
A'* 25 to B'* 330 *	3393.	5 5	(B <sup>V</sup> )  to			Water Water in		_
Ac to Bc tc Cc			(A <sup>V</sup> )  °C c <sub>p</sub> liq. °K					
Cryos. A consts. B			c <sub>p</sub> vap. *K					
te °C F	522,45	5	c <sub>v</sub> vap.		L		<u> </u>	L
	ercooled liquid	1				grams/100 gra	ms solvent	t
REFEREN	CES: 1-Dow	2-A	PI 3-Lit. 4-	Calc. from de	t. de	ata 5-Calc. by for	mula	
SOURCE:			PI					
PURIFICA			PI					
LITERAT	URE REFERE	NCE	<b>5</b> :					
i								

No. 110 NAME n-Pentacosylbenzene STRUCTURAL FORMULA 1-Phenylpentacosane C25H51 Ref. Molecular Mole Molecular C31H56 Weight 428.758 % Pur Formula Ref. Ref. Ref. F.P. \*C F.P. 100% 59. 2 dt/dP f to \*C/mm 25\*C <u>°K</u> g 2.3x10<sup>9</sup> I 5 B. P. °C h BP 0.07146 760 mm 474. 0.0323 5 ſ١ to 380.3 5 100 g¹ ۰ĸ 5 30 336.8 5 30 mm 1.1066 10 302.7 5 h١ ∆Hm cal/g 244. to m ΔHv cal/g Pressure °K n 25°C 76, 21 0.0824 mm 25°C 0 30 mm 51.94 2004. 5 te BP 43.59 5 Density g/ml 20°C m to 39.89 5 te (d, e) •K 'n 0.8544 0.8510 5 40.09 ٥, 25 dt4 AHV/T 21,26 5 30 0.8476 4 Surface tension 335 to 72.45 5 0.8680 30.79 4 515 °C 25 to 335 °C 0.0609 dynes/cm. 20°C 5 e 29.82 h 4 30 5 ď 78.16 5 28.88 5 40 Ref. Index e¹ 0.0778 5 1.4799 n<sub>D</sub> 20°C 2 Parachor [P] d g/ml vc ml/g 1.4779 25 2 20°C ml/g 30 1.4758 4 30 581.1 5 tc 40 "C" 0.7410 4 Pç 4384. 5 5 1182.1 mm Sugd. MR (Obs.) 142,54# 2 PV/RT Exp. L. 1. %/wt. MR (Calc.) 141.753 1.0000 1.0527 25°C 5 (nD-d/2) 1.0000 118. <sup>‡</sup> 30 mm Dispersion 2 Dielectric 2.190 5 0.9279 BP 5 Flash Point °C 0.8950 335 to 7.91049 te 4 Fire Point tç L540 °C R 3163.7 M Spec. 155. ΔHc kcal/m Ultra V ΔHf A\* | 335 to 2.7081 5 X-Ray Dif. ΔFf B\* 1530 °C 3038.6 Infrared Viscosity ĸ Viscos.., centistokes °C Solubility in c Acetone to Carbon tet. •c Benzene A' 25 to 8,3158 5 Ether B \_335 °C 3574.9 n-Heptane B<sup>V</sup> A<sup>V</sup> C' 186.0 Ethanol to ٠c Water 3.1575 25 to 5 Water in (BV) B'+ 335 °C 3464.9 to Ac (AV) to °C Bc •c cp liq. ۰ĸ Сc Cryos. A\* c<sub>p</sub> vap. •ĸ consts. B° c, vap. te °C 531.47 # for undercooled liquid grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula API SOURCE: PURIFICATION: API LITERATURE REFERENCES:

TABLE I. ALKYL AND HALO BENZENES

NAME		n-He	xaco	sylbe	nzene			ST	RUCTURAL	FORMUI	_A
		1 - PI	nenyl	hexac	osane				C 26 H	53	
Mole % Pur.		Ref.	Mol For	ecula mula	C <sub>32</sub> H <sub>58</sub>	Molecular Weight 442.	784				
				Ref.			Ref.				Ref.
F. P. °C		62.		2	dt/dP			f	to		
F.P. 100	%				°C/mm	4.23x10	9 5	g	'•K		1 1
B. P. °C 760 mm		403		١, ١	25°C <b>BP</b>	0.07180	4	h			$\perp$
100 mm		482. 388.		2 5	t <sub>e</sub>	0.0321	5	f'	to		
30		344.		5	30 mm	1.1156	5	g'	<u>*K</u>		1 1
10 1		309. 250.		5	∆Hm cal/g			h'	!		+
Pressure	$\top$			1	ΔHv cal/g			m	to to		
mm 25°0	- I	0.0	13	5	25°C 30 mm	75.01 51.06	5	0	·		1 1
t <sub>e</sub>	4	2029.	·	5	BP	42.93	5	m'	to		+ -
Density g/ml 20°		0, 85	. 42#	١, ١	te (d. a)	39.29	5	n'	*K		1
	۲	0.89	510 <sup>#</sup>	2 2	'e (a, e)	39.49	- 1	0'	i		
d <sub>4</sub> 25		0, 84	177	4	ΔHv/T <sub>e</sub>	21.38	5	Sur	face tension		1
	$\Box$	0.86		4	d 345 to e 540 °C		5		es/cm. 20°C	30.81	5
ь	$\dashv$	-0.0	300	4	d'  25 to	76.89	5	<b>*</b>	30 40	29.87 28.95	5 5
Ref. Inde		1.47	798‡	2	e'   345 °C	0.0751	5	Ba	rachor [P]	20.93	+-
D 25	١,	1.47	778	2	d <sub>c</sub> g/ml				20°C		1 1
30	$\perp$	1.47	768	4	vc ml/g tc °C	586.7	5		30		
"C"		0.74		4	P <sub>c</sub> mm	4225.	5		40 Sugd.	1221.1	5
MR (Obs.		147.18		2	PV/RT	<del> </del>	+	Ex	p. L.1.%/wt.		$\top$
MR (Calc (nD-d/2)	''	146.37	26 <sup>‡</sup>	5 2	25°C	1.0000	5	1	u.	4	
Dielectri	_	2, 19		5	30 mm BP	1.0000 0.9285	5		persion	117.	2
A 345 t			042	4	t.	0.8961	5		sh Point C		
B   550 °	c	3229. 3		4	t <sub>c</sub>	1		<u></u>			+
<u>c </u>	$\dashv$	155.		5	ΔHc kcal/m ΔHf	١			Spec. ra V.	İ	
A*  345 t B*  550 °		2.7! 3101.4	5494	5	ΔFf				Ray Dif.		
K 1330	-	3101.4			Viscosity			1	rared +	<del> </del>	+
°	_				centistokes	_			ubility in <sup>T</sup> cetone		
	c				ŋ °C	<b>'</b>		C	arbon tet.		1
A'   25 t		8. 3	582	5					enzene ther	ļ	
B' 345 °		3649.0		5		<del></del>	-	n.	-Heptane		
C'		186.4		5	B <sup>V</sup>   to				thanol ater		
A'* 25 t B'* 345		3.20 3538.0	098	5	(B <sup>V</sup> )  - to	-			ater in		
<del></del>		,,,0,0		1	(A <sup>V</sup> )  •0	l l					
Bc tc *	c					- +	+-	1			
				L	р.	`		1			
Cryos. A					c <sub>p</sub> vap. °F	۲					
te °C	F	540.49	7	5	c <sub>v</sub> vap.						
≠ for un	der	cooled	liqui	1					rams/100 gra	ms solve	nt
REFERE	NC	ES: 1-1	Dow	2-A	PI 3-Lit. 4	-Calc. from	det. d	ata !	5-Calc. by for	rmula	
SOURCE:				A	PI						
PURIFICA	ATI	ON:		A	PI						
LITERAT	UR	E REF	ERE	NCE	S:						

F							No. 11	2
NAME	n-Heptace	sylb	enzene			STRUCTURAL I	FORMULA	۸.
	l-Phenyll	nepta	cosane			C 27 H	55	
Mole % Pur,	Ref. Mo	lecul rmul	ar C <sub>33</sub> H <sub>60</sub>	Molecular Weight 456.8	10			
		Ref.			Ref			Ref
F. P. *C	64.	2	dt/dP		П	f to		
F. P. 1007			*C/mm 25*C	6.43×10 <sup>10</sup>	5	gK_		İ
B. P. *C 760 mm	490.	2	BP	0.07045	4	h		<u> </u>
100	397.4	5	t <sub>e</sub>	0.0321	5	f' to		l
30 10	354. 320.3	5	30 mm	1.0984	5	h'		
1	262.	5	ΔHm cal/g	ļ	-	m   to		$\vdash$
Pressure	0 0 71		ΔHv cal/g 25°C	84, 23	5	n ' •K_		
mm 25°C	1972.	5	30 mm	51.97	5	0		
Density	<del> </del>	<del>                                     </del>	BP te	42.07 38.21	5 5	m¹   to		
g/ml 20°0	0.8543	2	( c (u, u)	36.03	5	n'   •K_		1
d <sup>t</sup> 25	0.8510 <sup>#</sup> 0.8477	2	AHV/Te	21.32	5			<u> </u>
	0.8675	4	d 355 to	_   ''''	5	Surface tension dynes/cm. 20°C	30.84	5
Ъ	-0.0366	4	d'   540 %		5	y 30	29.90	5
Ref. Index		2	•' 355 °C		5	Possiber (B)	28.98	5
25	1.4777≠	2	d <sub>c</sub> g/ml	į		Parachor [P] 20°C		
30	1.4758	4	vc ml/g tc °C	585.	5	30		
"C"	0.7408	4	P <sub>c</sub> mm	3577.	5	40 Sugd.	1260.1	5
MR (Obs.) MR (Calc.		2	PV/RT	<u> </u>		Exp. L.1.%/wt.		
(nD-d/2)	1.0526	2	25°C 30 mm	1.0000 1.0000	5	u. Dispersion	117. ‡	2
Dielectric		5	BP	0.9026	5	Flash Point °C	117.	-
A 355 to		4	t <sub>e</sub> t <sub>c</sub>	0.8657	5	Fire Point		
B L550*9	3219.4 140.	5	ΔHc kcal/m	<del> </del>		M Spec.		
A*   355 to	<del></del>	5	ΔHf			Ultra V. X-Ray Dif.		į
B* _ 550 °C	3120.	5	ΔFf	<del>-</del>	-	Infrared		
c		1	Viscosity centistokes			Solubility in +		
tk   ""	• 1	1	7 •	;		Acetone Carbon tet.		
A' 25 to		5		j		Benzene		
B'   355 °C	3637.8	5	- ·	+	-	Ether n-Heptane		
C'	171.	5	B <sup>V</sup> to			Ethanol Water		
A'* 25 to B'* 355 °C		5	(BV)to	-		Water in		
Acl to	<u> </u>	Ť	(A <sup>V</sup> ) •C	1				
Bc tc *C		Ì	c <sub>p</sub> liq. •K	<del></del>	-			
Cryos, A	+	-	1	1				
consts. B			c <sub>p</sub> wap. *K	`				
t <sub>e</sub> °C	545.5	5	c <sub>v</sub> vap.					
	ercooled liquid					† grams/100 gran	ns solven	<u> </u>
	CES: 1-Dow			Calc. from det	t. da	ta 5-Calc, by for	nula	
SOURCE:	TION.	AP	·			<del></del>		
PURIFICA	RE REFERE	AP				····	<del></del>	
-MIERAIU	ne refekti	<b>▼した</b>	);					

TABLE I. ALKYL AND HALO BENZENES

Ref.

66.

498.

405.

361. 327.

268.

NAME

Mole

% Pur.

F.P. °C F.P. 100%

B. P. \*C 760 mm

100

30

10

n-Octacosylbenzene

1-Phenyloctacosane

Ref.

2

2

Molecular C34H62

dt/dP

BP

te

°C/mm 25°C

30 mm

∆Hm cal/g

No. 113 STRUCTURAL FORMULA C28H57 Ref. to •<u>K</u> ١ to <u>•к</u> g¹ h' m to <u>•K</u>

						m to		i I
Density	0.0 <sub>10</sub> 36 2001.	5 5	ΔHv cal/g 25°C 30 mm BP t <sub>e</sub>	83.04 51.16 41.52 37.65	5 5 5	m' to		
g/ml 20°C dt 25 d4 30	0.8543 0.8510 0.8477	2 4	t <sub>e</sub> (d, e)  ΔHv/T <sub>e</sub>	37.53 21.41	5	Surface tension		
a b	0.8675 -0.0 <sub>3</sub> 66	4	d 360 to e 550 °C d' 25 to	76.58 0.0704 85.41	5 5 5	dynes/cm. 20°C	30.87 29.93 29.01	5 5
Ref. Index nD 20°C 25 30	1.4796 1.4776 1.4757 0.7407	2 2 4	e' 360 °C  d <sub>c</sub> g/ml v <sub>c</sub> ml/g t <sub>c</sub> °C	0.0948 588.8	5	Parachor [P] 20°C 30 40		
MR (Obs.) MR (Calc.) (nD-d/2)	156.46 <sup>‡</sup> 155.607 1.0524 <sup>‡</sup>	2 4 2	P <sub>c</sub> mm PV/RT 25°C 30 mm	1.0000 1.0000	5 5 5	Exp. L.1.%/wt. u. Dispersion	1299.1 116. <sup>‡</sup>	2
	2.189 8.03223 3286.6	5 4 4	BP t <sub>e</sub> t <sub>c</sub>	0.9037 0.8687	5	Flash Point C Fire Point		
A* 360 to B* 560 °C	2.89990 3180.	5 5 5	ΔHc kcal/m ΔHf ΔFf			M. Spec. Ultra V. X-Ray Dif. Infrared		
K c to to			Viscosity centistokes			Solubility in + Acetone Carbon tet. Benzene		
A'   25 to B'   360 °C C'	8.4452 3713.8 172.	5 5 5	B <sup>V</sup> to			Ether n-Heptane Ethanol Water		
A'* 25 to B'* 360 °C	3. 3291 3611. 7	5	(B <sup>V</sup> )  to			Water in		-
Bc tc °C			c <sub>p</sub> liq. *K		<u> </u>			
Cryos, A° consts, B°	554.7	5	c <sub>p</sub> vap. *K c <sub>v</sub> vap.					
	cooled liquid	<u> </u>	И	L	l	grams/100 gra	ms solver	
REFERENCE	<u>-</u>		PI 3-Lit. 4-	Calc. from de	t. da			
SOURCE:		AF	PI					
PURIFICATI	ON:	AF	PI					
LITERATUR	E REFERE	NCE	S:					

Molecular Weight 470.836

1.26x10<sup>11</sup> 0.07077 0.0319

1.1073

Ref.

5 4 5

5

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h

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NAME	n-Nonaco:	sylbe	nzene			STRUCTURAL FORM	ULA
	l-Phenyln	ona c	osane			<b>Д</b> СИ	
Mole % Pur.		lecul rmul		Molecular Weight 484.8	62	C <sub>2 9</sub> H <sub>5 9</sub>	
7, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,		Ref.	Ī		Ref		Ref.
F.P. °C	68.	2	dt/dP	I		f to	
F.P. 1007		<u> </u>	*C/mm	١,,		g 1 1 10 10 10 10 10 10 10 10 10 10 10 10	
B. P. *C			25°C BP	2.29x10 <sup>11</sup> 0.07104	5	h	
760 mm	505. 411.	2	te	0.0306	5	f' to	
30	368.	5	30 mm	1.1149	5	g'   'K_	
10	333.	4 5	ΔHm cal/g	<u> </u>		h¹	
Pressure	274.	-	ΔHv cal/g	<u> </u>		m to	
mm 25°C	0.01019	5	25°C	81.78	5	n •K	
te	2110.	5	30 mm BP	50.32 42.69	5	<u> </u>	
Density	0.8543		te (d. a)	38.47	5	m' to to	
g/ml 20°0	0.8509	2 2	le (d, e)	39.33	5	0'	
d <sub>4</sub> 25	0.8475	4	ΔHv/T <sub>e</sub>	22.24	5	Surface tension	
	0.8679	4	d   365 to		5	dynes/cm. 20°C 30.	
b Def Jude	-0.0368	1	d'	84.07	5	30 29. 40 28.	
Ref. Index	1 4796	2	e¹   365 °(	0.0918	5	Parachor [P]	70 3
45	1.4775	2	d g/ml vc ml/g	1		20°C	1
"C"	0,7407	4	tc° °C °	591.	5	30 40	
MR (Obs.	- <del> </del>	2	P <sub>c</sub> mm	3098.	5	Sugd. 1338.	1 5
MR (Calc.	1 140 225	5	PV/RT 25°C	1 0000	_	Exp. L.1.%/wt.	
(nD-d/2)	1.0524	2	30 mm	1.0000	5	u. Dispersion 116.	# 2
Dielectric		5	BP	0.9433	5	Flash Point °C	<del></del>
A 365 t	8.06885 2 3346.3	4	te tc	0.9045	5	Fire Point	
c Ch	140.	5	AHc kcal/m			M Spec.	
A*   365 to		5	ΔHf ΔFf			Ultra V. X-Ray Dif.	
B* L570*	<u>5</u>  3240.	5	Viscosity	<del> </del>	-	Infrared	
l c	_		centistokes			Solubility in + Acetone	1
t <sub>k</sub>   to			η •	;		Carbon tet.	
A'   25 to		5				Benzene Ether	ļ
B' _ 365 °C	3781.2	5	- v 1	<u> </u>	ļ	n-Heptane	
C'	172.	5	B <sup>V</sup>   to			Ethanol Water	
A'* 25 to B'* 365*	3.37707 C 3678.1	5	(B <sup>V</sup> ) - to	-		Water in	
Acl to	,		(A <sup>V</sup> ) • c				
Bc tc_	듸		cp liq. °K	+			
Cryos. A'			c <sub>p</sub> vap. °K				
te °G	565.3	5	c, vap.				
	ercooled liquid		L *	1	L	+ (100	
REFEREN	CES: 1-Dow	2 - A F	PI 3-Lit. 4-	Calc from det	de	grams/100 grams sol ta 5-Calc. by formula	vent
SOURCE:		API		Calc. from det	. ua	- J-Care, by formula	
PURIFICA	TION:	API					
	RE REFERE		):			·	
L				···			

TABLE I. ALKYL AND HALO BENZENES

No. 115 n-Triacontylbenzene NAME STRUCTURAL FORMULA 1-Phenyltriacontane C 30H61 Molecular C36H66 Mole Ref. Molecular % Pur. Weight 498.888 Ref. Ref. F.P. °C F.P. 100% 70. 2 dt/dP f to °C/mm 25°C ١ •ĸ g 4.2x10<sup>11</sup> 5 B. P. °C h BP 0.07130 4 760 mm 512. 2 0.0313 5 ſ١ to 100 418. 5 g' •<u>к</u> 30 30 mm 374. 5 1,1224 5 10 339. 5 h' ∆Hm cal/g 1 279. m to ΔHv cal/g Pressure n ۰ĸ 25°C 80.59 ١ mm 25°C 0.0101 30 mm 49.54 5 te 2060. 5 BP 40.73 5 mī to Density 36.73 5 te (d, e) n' •K 0.8543<sup>‡</sup> 0.8509<sup>‡</sup> g/ml 20°C 2 36.96 5 ۰'  $d_4^t$ 25 2 AHV/Te 21.71 5 30 0.8475 4 Surface tension d 375 to 73.38 5 0.8679 dynes/cm. 20°C 30.92 a <u>570</u> <u>•c</u> 0.0638 5 ь -0.0368 4 30 29.95 5 ď to 25 82.81 5 40 29.00 e' Ref. Index °C 375 0.0890 5 1.4795 1.4775 20°C 2 [P] <sup>n</sup>D Parachor d<sub>c</sub> g/ml 25 2 20°C vc ml/g 30 1.4755 4 30 tc 590.8 5 40 "C" 0.7405 4  $P_c$  mm 2781. 5 1377.1 5 Sugd. MR (Obs.) 165.74<sup>‡</sup> 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 164.853 5 1.0000 1.0523 25°C 5 (nD-d/2)2 115. 1.0000 30 mm 5 Dispersion 2 Dielectric 2.189 5 BP 0.9138 5 Flash Point C 0.8772 te tc A 375 to 8.10600 4 Fire Point B 1580 °C 3406.8 4 M. Spec. C 140. 5 AHc kcal/m Ultra V. ΔHf A\* 375 to 2.98945 5 X-Ray Dif. ΔFf B\*| 570 °C 3300. Infrared K Viscosity Viscosic, centistokes °C Solubility in Acetone to Carbon tet. •c  $^{t_{\mathbf{x}}}\!\!\!\perp$ Benzene A' | 25 to 8,52362 B' 375 °C 5 Ether 3849.6 5 n-Heptane B<sup>v</sup> | 172. 5 Ethanol to °C Water A1# 25 to 3.4254 5 Water in (B<sup>V</sup>) B'\*375 °C 3745.6 to (A<sup>V</sup>)| Acl °C Bc t<sub>с</sub>\_ °C c<sub>p</sub> liq. ۰ĸ Cc Cryos. A cp vap. ۰ĸ consts. B° c, vap. te C 570.9 for undercooled liquid grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc, by formula SOURCE: API API **PURIFICATION:** LITERATURE REFERENCES:

No. 116 n-Hentriacontylbenzene STRUCTURAL FORMULA NAME 1-Hentriacontane C 31 H 63 Molecular C37H68 Molecular Weight 512,914 Mole Ref. Formula Ref. Ref. Ref. 72. 2 dt/dP f to F. P. 100% °C/mm g <u>•</u>K 7.74x10<sup>11</sup> 5 25°C B. P. °C h 0.07155 BP 4 760 mm 519. 2 0.0316 5 ſ to 100 5 ١, 425. g' °K 30 380. 5 30 mm 1.1297 5 10 345. 5 h' ΔHm cal/g 285. to m AHv cal/g Pressure •ĸ n 79.48 25°C mm 25°C 0.01156 o 30 mm 48.81 5 te 2037. 5 BP 39.49 5 to 1 Density te (d, e) 35.59 5 n' ۰ĸ g/ml 20°C 0.8543 5 2 35.59 0.8509 01 25 2 ď4 AHv/T 5 21,46 30 0.8475 4 Surface tension ď 380 to 74.30 5 0.8679 -0.0<sub>3</sub>68 30.95 5 dynes/cm. 20°C <u>5</u>80 e •c 0.06705 5 Ъ 4 30 29.97 •C 81.64 2.5 40 29.02 5 Ref. Index e¹ 380 0.0863 1.4794 20°C 2 [P] n<sub>D</sub> Parachor d<sub>c</sub> g/ml 25 1.4774 2 20°C tc \*C 30 1.4754 4 30 591. 5 40 "C" 0.7404 4 P<sub>c</sub> mm 2508. 5 1416.1 5 Sugd. MR (Obs.) 170.38≠ 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 169.471 1.0000 1.0523 25°C (nD-d/2) 5 u. 2 115. 30 mm 2 1.0000 5 Dispersion Dielectric 2.189 5 BP 0.8987 Flash Point °C t<sub>e</sub> 0.8607 | 380 to 8.14368 4 Fire Point 3468.2 t<sub>c</sub> M Spec. Ultra V С 140. 5 AHc kcal/m ΔHf A\* 380 to 3.05729 5 X-Ray Dif. ΔFf B\* 580 °C 3370. Infrared ĸ Viscosity Solubility in centistokes Acetone to ķ Carbon tet. •c Benzene A' 25 to 8,56367 Ether В' \_3<u>80</u> °C 3919.0 n-Heptane  $\mathbf{B}^{\widetilde{\mathbf{v}}}$ C١ 173. 5 Ethanol to ú i •c Water A'\* 25 to B'\* 380 °C 3,47392 Water in (BV) 3814.1 to Ac to (AV) °C Bc •c cp liq. ۰ĸ Сc Cryos. A\* c<sub>p</sub> vap. •ĸ consts. B° te °C c, vap. 577.4 5 # for undercooled liquid grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

TABLE I. ALKYL AND HALO BENZENES

						·	No. 117	7
NAME	n-Dotria	onty	lbenzene		1	STRUCTURAL	FORMUL	A
	l-Phenyl	dotri	acontane			<b>Д</b> С <b>н</b>		
Mole % Pur.	Ref. Mo	lecul		Molecular Veight 526.94	0	C 32 H 65		
		Ref.			Ref.			Ref.
F.P. °C F.P. 100%	74.	2	dt/dP °C/mm	12		f to		
B. P. *C			25°C BP	1.32×10 <sup>12</sup> 0.07176	5	h		
760 mm	525.	2	te	0.07176	5	f' to		
30	430. 386.	4 5	30 mm	1,1359	5	g' <u>*K</u>		
10	351. 290.	4 5	ΔHm cal/g			h'		
Pressure	1 2/0.	<u> </u>	ΔHv cal/g			m to		
mm 25°C	2091.71133	5	25°C 30 mm	78.28 48.04	5	<u></u>		
t <sub>e</sub>	2091.7	5	BP	39.60	5	m¹ to		-
Density g/ml 20°C	0.8543	2	te te (d, e)	35.66	5	n'  •K_		
dt 25	0.8509	2	. (4, 6)	35.95	5	0'		
<sup>4</sup> 4 30	0.8475	4	ΔHv/T <sub>e</sub>	21.89	5	Surface tension		
•	0.8679	4	d 385 to	71.74 0.0607	5	dynes/cm. 20°C	30.97	5
b	-0.0368	4	d' 25 to	80.38	5	30 40	30.00 29.05	5
Ref. Index	·  1.4704 <sup>‡</sup>	2	e'   385 °C	0.0839	5	Parachor [P]	- 77. 55	1
45	1.4773*	2	d g/ml			20°C		
30	1.4754	4	v <sub>c</sub> ml/g t <sub>c</sub> °C	597.7	5	30 40		İ
"C"	0.7404	4	P <sub>c</sub> mm	2526.	5		1455.1	5
MR (Obs.) MR (Calc.	1 174 080	2 5	PV/RT			Exp. L.1.%/wt.		
(nD-d/2)	1.0522	2	25°C 30 mm	1.0000	5	u. Dispersion	114.	2
Dielectric	2.189	5	BP	0.9148	5	Flash Point *C	117.	-
A 385 to	8.17642	4	ţ.	0.8758	5	Fire Point		
B 1.585 °C	3521.6 140.	5	tc ΔHc kcal/m			M. Spec.		
A* 385 to	<del></del>	5	ΔHf		Ì	Ultra V. X-Ray Dif.		
B* 570 °C		5	ΔFf		ļ	Infrared		
K		1	Viscosity centistokes		ł	Solubility in +		
t <sub>k</sub>   - tō	-	ł	η °C		Ì	Acetone	Ì	
٠ <u>٠</u> • ٥			•		1	Carbon tet. Bensene	]	
A'   25 to		5				Ether		
B' <u>385</u> °C	3979.3	5	B <sup>V</sup> to			n-Heptane Ethanol		1
A'* 25 to		5	_A'   _ •C	j	ì	Water		1
B'* 385 °C	3873.7	5	(B <sup>V</sup> )  to			Water in	<del> </del>	┼
Acl to		"	(A <sup>V</sup> )  •C	<u> </u>				
Bc tc C	_		c <sub>p</sub> liq. °K			ł		
Cryos. A		†	c <sub>p</sub> vap. *K					
consts. B		-	c vap.					
te °C	585.2 ercooled liqui	5	1 -v	L	<u> </u>	+ arama (100		<u></u>
	<del></del>		DI 3-14+ 4	Cala from de		grams/100 gra	<del></del>	16
SOURCE:	CES: 1-Dow	AI		Care, from de	u	ta 5-Calc. by for		
<del></del>	TION.	AF						
PURIFICA								
LILERATO	IRE REFERE	14CE	J.					

No. 118 STRUCTURAL FORMULA NAME n-Tritriacontylbenzene l - Phenyltritriac ontane C33H67 Molecular C39H72 Molecular Weight 540,966 Mole Ref. Ref 75. 2 dt/dP to F.P. 100% °C/mm g <u>•K</u> 2.46x10<sup>12</sup> 25°C 5 B. P. \*C h BP 0.07199 760 mm 532. 2 t<sub>e</sub> 0.0310 5 ſ١ 100 to 437. 5 g' •ĸ 30 392. 5 30 mm 1.1430 5 10 357. 'n۱ ∆Hm cal/g 295. to ΔHv cal/g m Pressure ۰ĸ n 77.31 25°C mm 25°C 0.01117 o 30 mm 47.40 5 2094. te 5 BP 38,80 5 to Density g/ml 20°C te te (d, e) 34.85 n' ٠ĸ 0.8543 0.8509 35.06 5 01  $d_4^t$ AHv/T 21,78 5 0.8475 4 Surface tension Т 390 to 71.46 5 0.8679 -0.0<sub>3</sub>68 30.99 dynes/cm. 20°C <u>585</u> 25 <u>•c</u> 0.0614 ь 30 30.02 5 to 79.34 5 40 29.07 5 Ref. Index e¹ •c 390 0.0815 5 1.4793 1.4773 20°C [P] 2 n<sub>D</sub> Parachor d<sub>c</sub> g/ml 25 2 20°C tc \*C 30 1.4753 4 30 596. 5 40 "C" 0,7403 4 P<sub>c</sub> mm 2199. 5 Sugd. 1494.1 5 MR (Obs.) 179.66# 2 PV/RT Exp. L.1.%/wt. MR (Calc.) (nD-d/2) 178,707 1.0522 25°C 1,0000 5 u. 30 mm 1.0000 114. Dispersion 2 0.9077 Dielectric 2,188 5 BP 5 Flash Point °C t<sub>e</sub> 0.8694 5 Fire Point 1390 to 8.21513 tç 3584.7 1590\_°C M Spec. Ultra V C AHc kcal/m 140. 5 ΔHf A\* 390 to 3.13377 5 X-Ray Dif. ΔFf B\* 590 °C 3480. Infrared ĸ Viscosity Solubility in centistokes Acetone t<sub>x</sub> to Carbon tet. •c Benzene 25 to 8,63962 Ether 1390 °C 4050.6 n-Heptane вv C' 174. Ethanol ٠c Water A1# 25 3.56644 Water in B1 # 390 °C 3944.0 (BV) to Ac (AV) °C Bci •c cp liq. •ĸ Cc Cryos. Aº c<sub>p</sub> vap. •ĸ consts, B° c, vap. te °C 592.5 # for undercooled liquid grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

TABLE I. ALKYL AND HALO BENZENES

NAME	n-Tetrat	riaco	ontylbenzene		T	STRUCTURAL	No. 11	
NAME			triacontane		$\dashv$	^		^
Mole % Pur.	Ref. Mo		AT	Molecular Weight 554.99	)2	C34 H69	•	
		Ref.	<del>,</del>	I	Ref.			Ref
F.P. °C	77.	2	dt/dP			f to		
F.P. 100%			*C/mm 25*C	4.23x10 <sup>12</sup>	5	g ' ' <u>*K</u>		
B. P. *C 760 mm	538.	2	BP	0.07218	4	h l		-
100	442.	5	t <sub>e</sub>	0.0314	5	f' to to		
30 10	397. 362.	5	30 mm	1.1490	5	h' <u></u>		
i	300.	5	ΔHm cal/g		$\vdash$	m to		<del>  -</del>
Pressure			ΔHv cal/g 25°C	76, 24	5	n  •K		l
mm 25°C t <sub>e</sub>	2068.	5	30 mm	46.72	5	0		
Density	2000.	-	BP	37.56 33.67	5	m' to		
g/m1 20°C	0.8543	2	t <sub>e</sub> (d, e)	33.66	5	n'   <u>*</u> K		ł
d <sub>4</sub> 25	0.8509	2	ΔHv/T <sub>e</sub>	21.46	5			<u> </u>
	0.8475	4	d 395 to	72.53	5	Surface tension	22 (7	_
b	-0.0368	4	e 595 °C d 25 to		5	dynes/cm. 20°C	32.67 31.64	5
Ref. Index	4		e'   395 °C	78.22 0.0793	5	40	30, 63	5
<sup>n</sup> D 20°C	1.4792 1.4772	2 2	d <sub>c</sub> g/ml			Parachor [P] 20°C		
30	1.4752	4	v <sub>c</sub> ml/g t <sub>c</sub> °C			30		
"C"	0.7402	4	P <sub>c</sub> mm			40 Sugal	1552 1	
MR (Obs.)	184.30≠	2	PV/RT	<del> </del>		Exp. L. l. %/wt.	1553.1	5
MR (Calc.) (nD-d/2)	183.323 1.0521	5 2	25°C	1.0000	5	u.	4	
Dielectric	2.188	5	30 mm BP	1.0000 0.8915	5	Dispersion	113.≠	2
A 400 to	8,24877	4	ll t	0.8534	5	Flash Point C Fire Point		
B  610 °C	3639.5	4	t <sub>c</sub>			M. Spec.		╁╌
<u>c</u>	140.	5	ΔHc kcal/m			Ultra V.		
A*  400 to B*  600 °C	3.19216 3540.	5	ΔFf			X-Ray Dif. Infrared		
к С	33.0.	_	Viscosity			Solubility in +		-
		ł	centistokes 7°C			Acetone		
ik °C			"			Carbon tet. Benzene		
A'   25 to	8,67538	5	1			Ether		
B' 1400 °C	4112.5 174.	5	B <sup>V</sup> to	<del>†</del>	$\vdash$	n-Heptane Ethanol		
A'* 25 to	3,61032	<del></del>	B <sup>V</sup> to A <sup>V</sup> C			Water		
B'*400 °C	4005.2	5	(B <sup>V</sup> )  to			Water in		ـــ
Acl to			(A <sup>V</sup> )  °C	1				
Bc t <sub>c</sub> C			c <sub>p</sub> liq. °K					
Cryos. A*	<b>†</b>	<del>                                     </del>	c <sub>p</sub> vap. *K					
consts. B			11					1
t <sub>e</sub> °C	598.	5	c <sub>v</sub> vap.		L			
≠ for unde	rcooled liqui	1				grams/100 gra		nt
REFERENC	ES: 1-Dow			Calc. from de	et. da	ata 5-Calc. by for	mula	
SOURCE:	· <u></u>	API		·				
PURIFICAT	ION:	API						
LITERATU	RE REFERE	NCE	S:					

No. 120 STRUCTURAL FORMULA n-Pentatriacontylbenzene NAME l-Phenylpentatriacontane C 35H71 Molecular C41H76 Molecular Mole Ref. Weight 569.018 S Pur Ref. Ref 79. F.P. \*C F.P. 100% 2 dt/dP f to °C/mm g ĽK. 25°C 7.31×10 B, P. °C 5 h BP 0.07236 760 mm 544. 2 5 f 0.0307 to 100 448. 5 g' °K 30 403. 5 30 mm 1.1549 5 10 367. þ, AHm cal/g 305. 5 to AHv cal/g m Pressure •ĸ n 25°C 75.24 mm 25°C 0.0<sub>12</sub>56 ٥ 30 mm 46.08 5 2128. t. 5 ΒP 37.81 5 m to Density g/ml 20°C te (d, e) 33.83 5 **5** n' •ĸ 0.8543 34.18 0.8509 01 2 25 ď4 AHV/T 21.89 5 30 0.8475 4 Surface tension т 400 69.72 to 0.8679 dynes/cm. 20°C 31.04 1 590 •c 0.0586 5 -0.0368 Ъ 30 30.06 5 to 25 77.16 1 40 29.11 ·c Ref. Index •1 400 0.0771 5 20°C 1.4792 P 2 Parachor  $\mathbf{q}_{\mathbf{q}}$ d<sub>c</sub> g/ml 1.4772 vc tc 25 2 20°C ml/g 30 1.4752 4 30 •c 40 "C" 0.7402 4 P<sub>c</sub> mm 1572.1 5 Sugd. MR (Obs.) 188.95≠ 2 PV/RT Exp. L. 1. %/wt. MR (Calc.) (aD-d/2) 187.943 1.0000 1.0521 25°C 5 u. 30 mm 113. 1.0000 5 Dispersion 2 Dielectric 2,188 5 BP 0.9089 Flash Point °C 0.8702 400 to 8.28283 Fire Point t<sub>c</sub> 3695.0 1910 .C M Spec. Ultra V C 140. 5 AHc kcal/m ΔHf A\* 400 to B\* 600 °C 3.21872 5 X-Ray Dif. ΔFf 3590. Infrared ĸ Viscosity Solubility in centistokes Acetone ξ<u>k</u> | ξ<u>x |</u> to Carbon tet. •c Benzene A1 25 to 8.7116 Ether B' 1400 °C 4175.2 5 n-Heptane ₽v Ċ١ Ethanol 174. to Ã۷i •c Water A1# 25 to 3.6544 5 Water in B'\* 400 °C 4067.1 (BV) to Acl to (AV) °C ·c Bc liq. ۰ĸ c<sub>p</sub> Cc Cryos. A\* c<sub>p</sub> vap. •ĸ consts. B t. °C c, vap. 606. 5 # for undercooled liquid grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API **PURIFICATION:** API LITERATURE REFERENCES:

TABLE I. ALKYL AND HALO BENZENES

NAME	n-Hexatr	iacon	tylbenzenc			STRUCTURAL FORMULA				
	l-Phenyl	hexat	riacontane			C 36H73				
Mole % Pur.		lecul rmul	C42H78	Molecular Weight 583.04	44					
		Ref.			Ref.		F	Ref.		
F, P, *C	80.	2	dt/dP			f to				
F.P. 1009	,		*C/mm			g  *K		- 1		
B. P. *C	<del>- }</del>	<del>                                     </del>	25°C	1.16×10 <sup>13</sup>	5	h				
760 mm	549.	2	BP	0.07250	4					
100	453.	5	t <sub>e</sub>	0.0311	5	f' to				
30	407.	5	30 mm	1.1597	5	g' <u>K</u>				
10 1	372.	5	ΔHm cal/g			h'				
	309.	-	ΔHv cal/g			m to	1			
Pressure mm 25°C	0 0 35	5	25°C	74.14	5	n   •K				
t <sub>e</sub>	2097.	5	30 mm	45.39	5	l°i l				
		+-	BP	36.56	5	m¹ to				
Density g/ml 20°0	0.8542	2	to (d. a)	32.73	5	n' K	1			
	0.8509	2	'e (u, e)	32.77	5	0'	- 1			
dt 25	0.8476	4	ΔHv/T <sub>e</sub>	21.61	5			$\dashv$		
	0.8674	4	d 405 to	70.71	5	Surface tension	21 04	5		
<b>.</b>	-0.0366	4	610 °C	0.0622	5	dynes/cm. 20°C	31.04	5		
	<del></del>	+-	d'   25 to	76.02	5	40	29.17	5		
Ref. Index	1 42017	2	e'   405 °C	0.0752	5	Parachor [P]		_		
<sup>n</sup> D 20°C	1.4771	2	d <sub>c</sub> g/ml			20°C	Ī	Ì		
30	1.4752	4	vc ml/g tc °C			30	- 1			
"C"	0.7401	4	`			40	ļ	_		
MP (Obe	<del></del>	+	P <sub>c</sub> mm			Sugd. 16	11.1	5		
MR (Obs. MR (Calc.	1 102 561	5	PV/RT			Exp. L.1.%/wt.				
(nD-d/2)	1.0520	2	25°C	1.0000	5	_ u.	. 4	_		
Dielectric		5	30 mm BP	1.0000	5		13.	2		
	<del></del>	+		0.8917 0.8536	5	Flash Point C		- 1		
A 405 to			t e		•	Fire Point				
B 1610 °C	3741.8 140.	4 5	ΔHc kcal/m	<u> </u>	├	M. Spec.				
A* 405 to		+	ΔHſ			Ultra V.	1			
B*  600 °C		5	ΔFf			X-Ray Dif. Infrared				
K COO	- 3040.	1	Viscosity			<u> </u>				
c	1	ţ	centistokes		l	Solubility in				
t <sub>k</sub> to		1	η •c	1		Acetone Carbon tet.	- 1			
<del> </del>	; <u> </u>			1		Benzene				
A'   25 to	8.74211	5	1			Ether				
B' 405 °C	4228.1	5	_v	<u> </u>	$\vdash$	n-Heptane				
C'	174.	5	B <sup>V</sup> to A <sup>V</sup> •C	ĺ		Ethanol Water				
A'* 25 to		5		-	ļ	Water in				
B'* 405 °C		5	(B <sup>V</sup> )  to	1						
Ac to	11		(A <sup>V</sup> )  °C	1		<u> </u>	ļ			
Bc tc C	<u>_</u>		c <sub>p</sub> liq. *K				- 1			
	+	+	P	1	1		ļ			
Cryos. A consts. B			c <sub>p</sub> vap. *K							
t <sub>e</sub> °C	610.	5	c <sub>v</sub> vap.	1	<u></u>	ii				
≠ for und	ercooled liqui	d				grams/100 grams	solvent	t		
REFEREN	CES: 1-Dow	2-A	PI 3-Lit. 4-	Calc. from de	t. de	ata 5-Calc. by form	ula			
SOURCE:		P	PI							
PURIFICA	TION:		PI			·····				
	JRE REFERI	ENCE	S:							

No. 122 STRUCTURAL FORMULA NAME Fluorobenzene Phenyl fluoride Molecular C6H5F Ref. Molecular Mole % Pur Formula Weight 96.100 Ref. Ref. Ref. F.P. \*C F.P. 100% -41.9 3 dt/dP to °C/mm <u>•</u>K g 25°C 0.2800 B. P. \*C h BP 0.0423 4 85.1 760 mm 31 0.0344 5 ſ١ to 100 31.3 5 g' \_\*K 5 30 7.5 30 mm 0.5990 4 -10.7 5 10 h' ∆Hm cal/g -41. to ΔHv cal/g m Pressure •K 25°C 88.35 mm 25°C 74.33 0 30 mm 90.64 5 t<sub>e</sub> 5 986.4 BP 80.09 4 to Density g/ml 20°C m 78.89 5 te te (d, e) •ĸ 1.0225 n' 3 78.92 5 ٥, 1.0165  $d_4^t$ 25 4 ΔHv/T 20,66 5 30 1.0104 31 Surface tension ď to 91.65 5 5 1.0463 . 4 dynes/cm. 20°C 2**7**.51 5 \*<u>C</u> 95 0.1358 5 Ъ 30 26.23 ă۰ ı 40 24.98 5 Ref. Index n<sub>D</sub> 20°C 1.46837 [P] Parachor d g/ml 0.3541 31 25 1.46553 20°C ml/g 2.824 31 30 1.46256 4 c 30 •c 31 <sup>t</sup>c 286.65 "C" 40 0,6052 4 Pc mm 31 5 33912. Sugd. 215.3 26.020 MR (Obs.) 4 PV/RT Exp. L. 1. %/wt. MR (Calc.) 26, 229 25°C 0.9999 5 0.9571 (nD-d/2) 4 30 mm 1.0000 Dispersion 32 Dielectric 5,42 BP 0.9725 Flash Point °C 0.9663 A 0 to 7.04659 31 Fire Point 1283.5 tc B 145 °C 31 M Spec. C 223. 5 AHc kcal/m Ultra V ΔHſ A+| 0 **to** 1.41361 5 X-Ray Dif. ΔFf B\* 105 ℃ 1197.6 Infrared Yes 1 ĸ Viscour, centistokes °C Viscosity Solubility in c Acetone to Carbon tet. •c Benzene œ A' to Ether œ B١ •c n-Heptane œ B<sup>V</sup> C' to Ethanol 00 •c Water A'+ to Water in (B<sup>V</sup>) B'\* •c to Ac | 145 to 7.0756  $(A^{V})_{I}$ °C Bc \_tc\_ 1305. •c cp liq. •ĸ Сc 226. 4 Cryos, A° consts, B° c<sub>p</sub> vap. •ĸ te °C c, vap. 93.7 5  $T_R = 0.75 T_c$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: 3, 31 **PURIFICATION:** 3, 31 LITERATURE REFERENCES: 3 Timmermans; 3' Young; 32 NBS Circ. 514

TABLE I. ALKYL AND HALO BENZENES

											No. 123	<u> </u>
NAME	В	enzot	riflu	orid					SI	RUCTURAL	FORMUL	A.
	a	, a , a ·	Trif	luor	otoluene					CF3		
Mole % Pur. 99.	95	Ref.	Mo	lecul: rmuli	C7H5F3		Molecular Weight 146.11					
<b>*</b>		ــــــــــــــــــــــــــــــــــــــ	•	Ref	<u> </u>	+		Ref.	Г			Ref.
F, P, *C	-:	29.11		1	dt/dP	$\neg$			f	to		
F.P. 100%					*C/mm		2 5104	ا ہِ ا	g	• <u>K</u>		
B. P. *C	١.,	03.0/		١.١	25°C BP		0.5104 0.04468	5 4	h	<u> </u>		
760 mm 100		02.06 45.30		1 4	t <sub>e</sub>	- 1	0.03547	5	f¹	to		
30		20.2		4	30 mm		0.6302	4	g'	• <u>K</u>		
10 1	-	1.0 30.6		5	ΔHm cal/g	_	22.04	4	h'			_
Pressure					ΔHv cal/g 25°C		61.48	5	m n	to to		
mm 25°C		38.55 19.5		5	30 mm		61.90	5	٥			
Te Density	10	17. 3		-	BP	1	53.82 52.8 <b>0</b>	5	m'	to		
g/ml 20°C		1.18	838	1	t <sub>e</sub> (d, e)		52.80	5	n' o'	<u>  •</u> K		
dt 25 4 30		1.18		1	ΔHv/T		20.01	5	°.	L		
	╁	1.17		4	d 15 t	to	63,89	5		face tension	32.43	,
a b		-0.00		4		C	0.0987	5	g yr	nes/cm. 20°C 30	23.41 22.34	1
Ref. Index	П					c			L	40	21.28	1
<sup>n</sup> D 20°C		1.41		1 1	d <sub>c</sub> g/ml		0.427	5	Pa	rachor [P] 20°C	270 5	4
30		1.39		i	v mi/g		2.34 289.5	5		30	270.5 270.6	4
"C"		0.46	42	4	tc °C Pc mm	١,	26698.	5		40 Su ad	270.8 271.9	4 5
MR (Obs.)		30.76		4	PV/RT	+	.0070.	H	F	p. L.1.%/wt.	211.9	,
MR (Calc.) (nD-d/2)	)  :	30.47 0.82		5 4	25°C	1	1.0000	5	EX	u.		
Dielectric	+	9.03		1	30 mm BP		1.0000 0.9587	5		persion		
A 0 to	+	7,00		1	t,		0.95 <b>04</b>	5		sh Point C e Point		
B (150 °C		31.3		1	t <sub>c</sub>	$\perp$	0,26	5		Spec.		
C	12	20.58		1	ΔHc kcal/m	n			Ult	ra V.		
A*  10 to B*  125 °C	12	1.56 48.0	264	5	ΔFf					Ray Dif. rared		
K	-				Viscosity				├──	ubility in +		$\vdash$
t <sub>k</sub>   - to					centistokes		0.4878	ı	A	cetone	••	
<u>Ç</u> •c					40		0.4039	1		arbon tet. enzene	<b>80</b>	
A'   to					60 80		0.3441 0.2979	1 1		ther	<b>60</b>	
B'   <u>•C</u>	-				B <sup>V</sup> 20 to	•	365.61	4		-Heptane thanol	80 80	
A'* to	$\top$					C	2.43894	4		ater	Decomp.	
B'* *C	$\perp$			<u> </u>	{  '''	:0			<b>—</b> "	ater in	Decomp.	<del>                                     </del>
Ac 150 to	16	7.42 58.7	586	5		'C			ŀ			
Cc	- 2	63.5		5	c <sub>p</sub> liq. •1	K						
Cryos. A° consts. B°		0. 02	732	1	c <sub>p</sub> vap. *I	ĸ						
t <sub>e</sub> °C	1	12.35		5	c <sub>v</sub> vap.			į				
$T_R = 0.7$	5 T <sub>C</sub>				<b>.</b>			•	* * g	rams/100 gra	ms solven	t
REFEREN	ES	1-1	)ow	2-A	PI 3-Lit.	4-C	alc, from de	t. da	ta !	-Calc. by for	rmula	
SOURCE:					Dow, Li	it.						
PURIFICA?	1017	₹:			Dow dist	tilla	tion, Lit.					
LITERATU	RE	REF	ERE	NCE	5: 3 JACS 73	3, 9	1 (1951) Pot	ter a	nd Sa	ylor		

No. 124 STRUCTURAL FORMULA NAME Chlorobenzene Molecular C6H5C1 Ref. Mole Molecular % Pur. 99.98 Weight 112.557 Formula Ref. Ref. Ref. F.P. \*C -45.58 1 dt/dP to F.P. 100% °C/mm °K g 25°C 1.4794 B. P. °C h BP 0.0489 4 760 mm 131.70 0.0364 5 f to 100 69.8 4 g' <u>•</u>K 30 0.6842 4 42.4 4 30 mm 10 21.6 5 h' ΔHm cal/g -13. 5 to m AHv cal/g Pressure •ĸ 25°C 90.31 n mm 25°C 11.75 30 mm o 85.66 4 t<sub>e</sub> 1109. 5 BP 74.39 3 Density m' to 72.74 5 te (d, e) ٠ĸ g/ml 20°C n' 1.10578 72.74 5 1.10037  $d_4^t$ 19.52 5 AHv/T 30 1.09477 Surface tension 90.99 d 40 5 to 1.12743 dynes/cm. 20°C 33.19 <u>150</u> <u>•с</u> 0.1248 5 -0.00109 30 31.98 1 ď٠ ō to 89.35 1 40 30.77 1 Ref. Index e' 40 0.0864 20°C 1.52406 n<sub>D</sub> [P] Parachor d<sub>c</sub> g/ml 0.3654 3 25 1.52138 20°C 1 244.33 2.737 ml/g 3 30 1.51837 4 c 30 244.51 4 •c 359.2 3 ťč 40 244.62 "C" 0.6216 4 c mm P 33926. 3 Sugd 244.3 5 MR (Obs.) 31,17 PV/RT 33 Exp. L.1.%/wt. 6.6 F MR (Calc.) 31.174 5 25°C 1,0000 5 33 29. (nD-d/2) 0.97120 u. 4 30 mm 0.99992 5 Dispersion Dielectric 0.9604 5.621 32 BP 5 33 Flash Point °C 29. te 0.9499 5 40 to 6.94504 4 Fire Point t<sub>c</sub> 0.265 1200\_°C 1413.12 M Spec. Yes ı C AHc kcal/m 216.0 4 Ultra V 1 Yes ΔHf A\* 40 to 1.34982 4 X-Ray Dif. ΔFf B\* 205 °C 1321.8 Infrared 240. 1 ĸ Viscosity 34.2 Solubility in -0.16067 centistokes 4 t<sub>k</sub> | 205 to t<sub>x</sub> | 310 °C Acetone 20 °C 207.2 0.7232 1 Carbon tet. 00 420. 40 0.5837 1 Benzene 80 60 0.4858 1 0 to 7,49823 Ether œ 80 0.4139 B١ 40 °C 1654.0 n-Heptane C١ 232.3 5 30 to 412.87 Ethanol  $\mathbf{A}^{\mathbf{V}}$ 0.050 90 °C Z. 44796 Water 0 1.89473 5 Water in 4.4 1 B'\* 40 °C 1527.4 (BV) to Ac | 200 to 7.58977 4 (AV) °C Bc \_tc\_ 2001.9 liq 293. 2K Cc 295.3 4 0.3186 31 Cryos. A. c<sub>p</sub> vap. consts. B° te °C c, vap. 146.24 4  $T_R = 0.75 T_c$ ≠ 100°C # 150°C grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: Dow **PURIFICATION:** Distillation LITERATURE REFERENCES: 3 Young; 3' Timmermans; 32 NBS 514; 33 NFPA 325

TABLE I. ALKYL AND HALO BENZENES

No	1	2	5

NAME	o-Dichlor	ober	zene			STRUCTURAL FORMULA			
	1,2-Dich	lorot	enzene			C			
Mole % Pur. 99	Ref. Mol	ecul		Molecular Weight 147.00	06	Cı			
		Ref.			Ref.		I	Ref.	
F. P. *C F. P. 100	_17.0	1	dt/dP °C/mm			f to			
B. P. *C 760 mm 100 30 10 1	180.46 112.4 82.4 59.6 21.	4 4 4 5 5	25°C BP te 30 mm  AHm cal/g  AHv cal/g	11.490 0.0538 0.03715 0.7506 21.70	5 5 5 4	h   to g'   to - *K h'   to n   e K			
mm 25°C	1, 282 1221, 5	5 5	25°C 30 mm BP	81.61 75.92 63.88 61.63	5 5 5	n		$\dashv$	
g/ml 20° dt 25 4 30	1.30570 1.30015 1.29457	1 1 4	t <sub>e</sub> (d, e)  ΔHv/T <sub>e</sub>	61.38 19.11	5	n' K o' Surface tension			
a b Ref. Inde	1.32790 -0.00111	4 4	d 80 to e 200 °C d 15 to e' 80 °C	85.91 0.1221 84.09 0.0992	5 5 5	dynes/cm. 20°C 8 30 40	37.18 36.02 34.92	1 1 1	
<sup>n</sup> D 20° 25 30		1 1 4	d g/ml vc ml/g tc °C	0.408 2.449 424.1	5 5 5	Parachor [P] 20°C 30			
"C"	0.5521	1	P <sub>c</sub> mm	30800.	5	40 Sugd.	281.1	5	
MR (Obs. MR (Calc (nD-d/2)	36.041 0.8985	4 5 5	PV/RT 25°C 30 mm	1.0000	5	Exp. L.1.%/wt. u. Dispersion			
A 80 to		1	BP t <sub>e</sub>	0.9423 0.9261	5	Flash Point *C Fire Point	93.3	1	
B   250 °C C	C_ 1538.3 200.0	4	t <sub>c</sub> ΔHc kcal/m ΔHf	0.255	5	M. Spec. Ultra V.	Yes	1	
B* 220 °C K c t <sub>k</sub> to	1450.9	5	Viscosity centistokes γ 20 °C 40 60	1.0656 0.8288 0.6636	1 1 1 1	Solubility in + Acetone Carbon tet. Benzene	351. ∞ ∞ ∞	1	
A'   15 to B'   80 °	217.8	5 5 5	B <sup>V</sup>   30 to A <sup>V</sup>   90 °C	0.5729 443.51 2.50238	4	Ether n-Heptane Ethanol Water	80 80		
A'* 15 to B'* 80 ° Ac  250 to	C 1641.1	5 5	(A <sup>V</sup> )  *C	2,50238	1	Water in	2.1	1	
Bc tc	C 1928.2 253.8	5 5	c liq.20 °C	0.275 0.298	1 1				
Cryos. A consts. B		1	c <sub>p</sub> vap. *K				i		
t <sub>e</sub> °C	200.9	5	c <sub>v</sub> vap.	1	<u> </u>			L	
$T_R = 0$ .		2 ^	DI 3 144 4	Cala from 3		grams/100 gram		<u>t</u>	
	ICES: 1-Dow	Z-A Do		Calc. from de	t. di	ata 5-Calc. by for			
SOURCE:	TION		stillation						
	URE REFERE								

No. 126 STRUCTURAL FORMULA NAME m-Dichlorobenzene 1, 3-Dichlorobenzene Molecular C6H4Cl2 Mole Molecular % Pur. 99.04 Weight 147.006 Formula Ref. Ref. -24,76 1 dt/dP f to F.P. 100% °C/mm g °K 25°C 8,061 5 B. P. °C h BP 0.0534 5 760 mm 173.08 105.57 t<sub>e</sub> 0.0372 5 ſ١ to 100 4 g' <u>•</u>K 75.9 4 30 30 mm 0.7419 4 5 10 53.3 h' ∆Hm cal/g 5 16 to m ΔHv cal/g Pressure •K 25°C 78.96 5 n 1.889 mm 25°C 30 mm o 74,02 5 5 1214. t<sub>e</sub> 5 BP 62.79 m to Density g/ml 20°C 60.61 5 te te (d, e) 1.28844 n' •K 60,48 5  $\mathbf{d_{4}^{t}}$ 25 1.28280 1 AHV/Te 19.11 5 30 1.27712 Surface tension 75 d 82.79 5 to 1.31101 -0.00113 dynes/cm. 20°C 36.84 190 •c 0.1156 5 ь 4 30 35.56 5 đ٠ 25 81.38 1 5 40 34.32 Ref. Index e¹ •c 75 0.0969 20°C 1.54586 [P] n<sub>D</sub> Parachor d g/ml 0.410 5 25 1.54337 1 20°C ml/g 2.44 5 30 1.54076 4 c 30 •c t<sub>c</sub> 410.8 1 "C" 40 0.5543 4 c mm P 5 29112. 5 Sugd 281.1 36.14 MR (Obs.) 4 PV/RT Exp. L.1.%/wt. MR (Calc.) 36.041 5 1.0000 5 25°C (nD-d/2) 0.90197 30 mm 1.0000 Dispersion 5.04 3 Dielectric BP 0.9510 5 Flash Point °C 72.0 0.9354 A 75 to 6.88045 te Fire Point 4 tç 0.255 1496.2 B 240 °C M Spec. Yes 1 С 201. AHc kcal/m Ultra V. ΔHf A\* 75 to 1.38472 5 X-Ray Dif. ΔFf B+ 205 °C 1406.2 352. 1 Infrared K Viscosity Solubility in centistokes Acetone to ٠ċ Carbon tet. Benzene œ A' 10 to 7.22086 Ether 00 B١ \_ 75 °C 1690.7 n-Heptane an 218.4 to •C Ethanol œ  $\tilde{\mathbf{A}}^{\mathbf{v}}$ A'+ B'+ 1.72298 Water 15 to 75 °C 5 Water in (BV) 1594.3 to Ac | 240 to 7.28934  $(A^{V})_{1}$ °C 1878.8 Bc tc\_C 5 cp liq. °K Сc 254.2 Cryos. A. c<sub>p</sub> vap. •ĸ consts. B° te °C c, vap. 193.11 5  $T_{\mathbf{R}} = 0.75 \, T_{\mathbf{c}}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: Dow PURIFICATION: Distillation LITERATURE REFERENCES: 3 NBS Circ. 514

TABLE I. ALKYL AND HALO BENZENES

NAME							- 1	C.T		PARAMIT	
	p-Dichlorobenzene						$\dashv$	2.1	RUCTURAL	FORMUL	JΑ
		ĪΠ					$\dashv$				
Mole % Pur. 99	. 91	Ref.	Mol For	ecula mula	C6H4CI2	Molecular Weight 147.00	06		¥		
	_			Ref.			Ref.				Ref
F.P. °C	$\perp$	53.1		1	dt/dP			ſ	to		
F.P. 1009	•				*C/mm 25*C	8, 595	5	g	'• <u>K</u>		
B. P. *C 760 mm	Ι,	74.21	l	1	BP	0.0534	5	h	l		↓_
100		06. 73		4	t <sub>e</sub>	0.0371	5	f'	to		
30		77.06	,	4	30 mm	0.7426	4	g'	' <u>*K</u>		-
10 1		54.5 16.7		5	ΔHm cal/g	30.434	1	h'	1	ļ	-
Pressure	$\top$				ΔHv cal/g			m n	to •K		1
mm 25°C		1.75	9	5	25°C 30 mm	79.49 74.44	5 5	0		İ	1
t <sub>e</sub>	12	213.		5	BP	63.04	5	m'	to		+
Density	.	1 24	750	١, ا	t <sub>e</sub>	60.85	5	n'	*K	İ	1
g/ml 55 (	1	1.24		1 1	te (d, e)	60.69	5	0'			
d <sub>4</sub> 65	1	1.23		4	ΔHv/T <sub>e</sub>	19.06	5	Sur	face tension		+
a 55°C	:	1.31		4	d 75 to		5 5		es/cm 60C	31.33	1
b		-0.00	116	4	d' 20 to	81.92	5	8	70 117	30.42 25.44	1 3
Ref. Index		1,52	940	1	e'   75 °C	0.0970	5	- Davi	achor [P]	23.44	+-
<sup>n</sup> D 60	1	1.52		4	d <sub>c</sub> g/ml	0.395	5	Par	60°C	280, 1	4
65		1.52	319	5	vc ml/g tc °C	2.53 411.6	5		70	280.7	4
"C" 55°C	:	0.55	54	4	P <sub>c</sub> mm	29300.	5		117 Sugd.	281.3 281.1	5
MR (Obs.				4	PV/RT	12,500.	+	Fv.	L.1.%/wt.		Ť
MR (Calc. (nD-d/2)5		36.04		5	25°C	1.0000	5	LA	u.		
Dielectric	_	0.90			30 mm BP	1.0000	5	Dis	persion		
A 75 to				1	t te	0.9481 0.9330	5		sh Point C	68.3	1
B   240 °C		6.89 507.3	1797	4	te	0, 268	5	<u> </u>	e Point	140.5	1
c		201.		4	∆Hc kcal/m				Spec. ra V.	Yes Yes	1 1
A# 75 to		1.40	489	5	ΔHf ΔFf			X-1	Ray Dif.	Yes	1
B*  205 °C	- 14	118.0		5	Viscosity	-	+	<b></b>	rared	353.	1
c	_				centistokes				ubility in T		
t <sub>k</sub>					η ·c	:			arbon tet.	e0 e0	
t'x   °C		7 11	040	_	İ				enzene	<b>80</b>	
B'  _ 75 °C		7, 23 7, 23	748	5					her Heptane	<b>80</b>	
C'	_   2	218.		5	B <sup>V</sup>   to			E	hanol	<b>80</b>	
A** 15 to		1.74	063	5	⊩. <u>≂v.<del>−</del> </u>	-	Ì		ater ater in		
B'* 75 °C	-+-	606.6		5	(B <sup>V</sup> )  to	1	1	<u> </u>		<del>                                     </del>	+
Acl 240 to		7,30 389,6	658	5	(A <sup>V</sup> )  °C	:	↓	1			
Bc tc C	_ '2	254.		5	c <sub>p</sub> liq. *F	:	'	ļļ			
Cryos, A		0, 02	116	1	c <sub>p</sub> vap. •K						
consts. B					ll -		İ				
t <sub>e</sub> °C F		94.2		5	c <sub>v</sub> vap.		<u> </u>	L		<u></u>	
$T_{\mathbf{R}} = 0.$									rams/100 gra		nt
REFEREN	CES	: 1-I	)ow			-Calc. from d	et. da	ita 5	-Calc. by for	mula	
SOURCE:				Dow							
PURIFICA	TIO	N:		Dist	illation						
LITERAT	JRE	REF	ERE	NCE	5: 3 Timme	rmans					

No. 128 NAME 1, 2, 4-Trichlorobenzene STRUCTURAL FORMULA Molecular C6H3Cl3 Ref. Mole Molecular % Pur. 99.93 Weight 181.455 Formula Ref Ref Ref. 16.92 1 dt/dP f to F.P. 100% °C/mm 16.95 1 <u>°K</u> g ١ 25°C 47.094 B. P. \*C h ВP 0.0561 760 mm 213.48 1 0.0361 5 f to 100 141.68 4 g' °K 30 109.52 4 30 mm 0.8089 4 10 84.8 5 h' ١ ∆Hm cal/g 21.53 4 43.1 5 to m ı ΔHv cal/g Pressure •ĸ n 25°C 71.12 mm 25°C 0.2907 30 mm 66.10 5 1324. 5 t<sub>e</sub> BP 57,43 5 m ١ to Density g/ml 20°C te te (d, e) 55.38 5 •K 'n 1.45420 55.34 5 ١ ٥' 1.44829 25  $d_4^t$ AHV/Te 19.64 5 30 1.44237 4 Surface tension 1 110 75, 23 to 5 1.47784 4 39.10 dynes/cm. 20°C 1 240 •c 0.0834 -0.00118 Ъ 4 -ر<sub>ه</sub> 30 37.98 36.86 1 to 72.60 5 20 1 40 ī e' Ref. Index 1110 •c 0.0594 5 20°C 1.57168 1 [P]  $\mathbf{n}_{\mathbf{D}}$ Parachor d<sub>c</sub> g/ml 0.471 5 25 1.56933 vc ml/g tc °C 20°C 312.0 2.12 50 1.55765 1 30 312.3 4 461.8 5 "C" 40 312.5 4 0.5127 4  $P_c$  mm 29900. 5 Sugd. 318.7 5 MR (Obs.) 41.038 4 PV/RT Exp. L.1.%/wt. MR (Calc.) 40.908 1.0000 25°C 5 (nD-d/2) 0.84458 30 mm 1.0000 5 Dispersion Dielectric 3.945 1 BP 0.9476 Flash Point °C 110. t<sub>e</sub> 0.9299 **110 to** 7,19508 1 Fire Point None 1 0.25 1827.0 t<sub>c</sub> [280 °C В 1 M Spec С 210. ı AHc kcal/m Ultra V ΔHf A\* 25 to 1.74692 5 X-Ray Dif. ΔFf B\* 110 °C 1721.8 5 Infrared ĸ Viscosity Solubility in centistokes Acetone to t | 2.0 1.4225 1 Carbon tet. •c 40 1.0252 Benzene 0.7915 1 60 A' 20 to 7,5553 Ether 80 0 6402 B' 110 °C 2064.4 n-Heptane C' 230.1 5 30 to 565.53 Ethanol A | 90 2.20516 A'\* 25 to B'\* 110 °C •c Water 2.1092 5 (B<sup>V</sup>) Water in 1953.3 to Ac | 280 to 7.19792 5 (A<sup>V</sup>) °C •c Bc \_tc\_ 1829.7 cp liq. ۰ĸ Cc 210.4 Cryos. Aº 0.02338 c<sub>p</sub> vap. •ĸ consts. B° c<sub>v</sub> vap. te °C 238,54 5  $T_{R} = 0.75 T_{c}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: 3, Dow Dow distillation, crystallization PURIFICATION: LITERATURE REFERENCES: 3 Prod. Dev. Bull. CB-3, Solvay Proc. Div.

TABLE I. ALKYL AND HALO BENZENES

Nο	129	

NAME	o-Chloro	tolue	ne		No. 129 STRUCTURAL FORMULA				
NAME			nethylbenzene			Сн3			
Mole % Pur.	Ref. Mo		ar C H Cl						
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		Ref	<del>,</del>	Veight 126.5	Ref.	J		Ref.	
F.P. °C F.P. 1009	-35, 1	3	dt/dP °C/mm			f to			
B. P. °C 760 mm 100 30 10 1 Pressure mm 25°C te Density g/m1 20°C d4 25 4 30  Ref. Index nD 20°C WR (Obs. MR (Calc (nD-d/2) Dielectric A 65 to B 1 220 °C C  C  A* 65 to C  A* 65 to C  C  C  C  C  C  C  C  C  C  C  C  C	159.15 93.61 64.69 42.6 5.8 3.619 1179.  1.08245 1.07762 1.07273 1.10178 -0.03967 6.1.52680 1.52221 1.51760 0.6382 0.35.473 35.792 0.9856 4.73 6.94763 1.497.2 209.0 1.38854	3 4 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	25°C BP te 30 mm  AHm cal/g  AHv cal/g  25°C 30 mm  BP te te (d,e)	4.478 0.0517 0.0367 0.7242 15.80 86.15 82.49 70.87 68.83 68.64 19.34 90.45 0.1230 88.45 0.0922 0.348 2.869 385.9 28862.	5 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	h   f' to g'   c	33.99 33.44 32.33 281.3 281.4 281.4 283.3	3 3 3 3 4 4 4 5 5 3 3 3 3 3	
A'   0 to B'   65 °C C' A'* 10 to B'* 65 °C Ac  220 to Bc  t <sub>c</sub> °C	2 1691.79 226.2 1.72744 1591.85 7.3637	5 5 5 5 5 5	Bv to Av   **C  (Bv)  **C  (Av)  **C  c <sub>p</sub> liq. 0 **C	0.315	3	Ether n-Heptane Ethanol Water Water in	80 80 80		
Cryos. A consts. B		5	c <sub>p</sub> vap. *K						
_			DI 2 I '	C-1- (		grams/100 gra		nt	
	CES: 1-Dow	2-A	P1 5-Lit. 4-	Calc. from de	et. d	ata 5-Calc. by for	rmula		
SOURCE:	TION.	3							
	JRE REFERE od, Paris, Fr	NCE		ristics der C	orps	Chim. Purs. et Te	ech.	<del></del>	

No. 130 STRUCTURAL FORMULA NAME 3, 4-Dichlorotoluene 3, 4-Dichloro-1-methylbenzene Molecular C7H6Cl2 Molecular Mole Ref. % Pur. 99.93 Weight 161.032 Formula Ref. Ref. -15.25 1 dt/dP f to F.P. 100% •C/mm g <u>•</u>K ١ 25°C 42.149 5 B. P. \*C h 0.0563 BP 4 760 mm 208,92 1 0.0369 5 f t<sub>e</sub> to 100 137.47 4 g' \_K 30 105.87 4 30 mm 0.7916 4 81.8 10 h' 15.85 ∆Hm cal/g 4 41.4 5 to AHv cal/g m Pressure •K n 82.78 25°C 5 mm 25°C 0.315 5 o 30 mm 74.67 5 1303. 5 t<sub>e</sub> BP 62.92 5 1 Density g/ml 20°C te (d, e) 60.39 5 ۰ĸ n' 1.25256 5 60.12 0' 25  $d_4^t$ 1.24751 AHV/T 5 19.20 30 1.24245 Surface tension 1 105 86.74 5 1.27276 36.50 2 dynes/cm. 20°C 1 e •c 0.1140 5 <u> 1 230</u> Ъ -0.00101 30 35.61 1 to •C 85,28 5 25 1 40 34.58 1 Ref. Index e' 105 0.1003 5 20°C 1,54712 [P]  $\mathbf{n}_{\mathbf{D}}$ Parachor d<sub>c</sub> g/ml 0.407 5 25 1.54494 20°C 316.0 vc tc ml/g 2.456 5 50 1.53368 30 316.8 4 •c 451.2 5 40 316.7 4 "C" 0.5714 4 P<sub>c</sub> mm 27986. 5 5 Sugd. 320.5 MR (Obs.) 40,780 4 PV/RT Exp. L.1.%/wt. MR (Calc.) (nD-d/2) 40.659 25°C 1.0000 5 0.92084 4 30 mm 1,0000 Dispersion Dielectric 8.970 RP 0.9427 5 1 Flash Point °C t<sub>e</sub> 0.9246 6.97925 105 to Fire Point 0.245 tc В 270 °C 1655.44 M Spec. Ultra V. 195.0 C 4 AHc kcal/m ΔHf A\* | 105 to B\* 245 °C 1.50376 1562.5 5 X-Ray Dif. ΔFſ Infrared ĸ Viscosity Solubility in centistokes Acetone 20 1.2542 1 Carbon tet. •c 90 40 0.9403 Benzene œ 60 0.7447 A' 25 to 7.32588 Ether œ U.05 °C 1870.60 80 0,6121 n-Heptane 5 œ C' 214.0 5 30 515.64 Ethanol œ ÃV I 90 •c Z. 32692 Water A\*\* 25 to B\*\* 105 °C 1.85124 5 Water in 30°C 0.0026 1772.11 (BV) to Ac | 270 to 7.3839 5 (AV) °C Bc Ltc\_ •c 2053.3 cp liq. •ĸ Cc 247.9 Cryos. Aº •ĸ 0.01932 c<sub>p</sub> vap. consts, B° c<sub>v</sub> vap. te °C 233.4 5  $T_{\mathbf{R}} = 0.75 \, \mathbf{T_{\mathbf{c}}}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: Dow PURIFICATION: Distillation LITERATURE REFERENCES:

TABLE I. ALKYL AND HALO BENZENES

No. 131 2, 4-Dichlorobenzyl chloride NAME STRUCTURAL FORMULA a, 2, 4-Trichlorotoluene Molecular C7H5Cl3 Mole Ref. Molecular % Pur. 99.53 1 Weight 195.481 Ref. Ref -2,60 1 F. P. °C dt/dP to F. P. 100% °C/mm ١ •K g 25°C 290,43 B. P. °C h BP 0.0591 760 mm 248.03 0.0368 5 ſ١ to 100 172.57 g' •<u>к</u> 30 138.87 30 mm 4 0.8471 4 10 113.0 5 h' ∆Hm cal/g 16.08 4 1 69.4 5 m to AHv cal/g Pressure n ۰ĸ 25°C 77.57 0.04012 mm 25°C 30 mm 67.92 te 1383. 5 BP 5 56.71 m' to Density 54.15 5 te (d, e) 'n •K g/ml 20°C 1.40683 53.77 ۰' 25 1,40139  $\mathbf{d_{4}^{t}}$ AHv/Te 19.25 5 30 1.39595 4 140 Surface tension to 82.19 5 1.42859 dynes/cm. 20°C . 41.32 0.1027 270 °C to 5 ь -0.00109 4 30 40.19 an i 25 79.69 5 40 39.06 1 •c Ref. Index e¹ 1 140 0.0848 5 n<sub>D</sub> 20°C [P] 1.57606 Parachor d g/ml vc ml/g t °C 25 1.57383 1 20°C 352.3 50 1.56271 30 352.6 4 t<sub>c</sub> 498.1 5 40 352.8 "C" 4 0.5338 4 P<sub>c</sub> mm 28460. 5 5 Sugd. 357.7 MR (Obs.) 47.035 PV/RT Exp. L.1.%/wt. MR (Calc.) 46,258 5 1.0000 25°C (nD-d/2) 0.87265 4 30 mm 1.0000 5 Dispersion Dielectric 6.290 1 BP 0.9256 5 Flash Point C 0.9039 te tc A 140 to 7.14735 1 Fire Point 1881.38 B 1305 °C M. Spec. C 192.93 AHc kcal/m Ultra V ΔHf A\* 140 to 1.75073 X-Ray Dif. ΔFf B\* 290 °C 1789.19 Infrared ĸ Viscosity Solubility in centistokes Acetone to 20 °C 2,6000 1 Carbon tet. °C <u>د پا</u> 40 1.6617 1 Benzene 60 1.1876 A' | 20 to 7.50457 5 Ether 100 0.9084 B' 140 °C 2125.90 5 n-Heptane B<sup>V</sup> | 30 A<sup>V</sup> | 110 30 to 213.8 510.93 2.58923 Ethanol •c Water A'# 25 to 2.09119 5 Water in (B<sup>V</sup>)| B'# 140 °C 2022.0 5 to Ac | 305 to 7.5540 (A<sup>V</sup>)| °C 2308.4 Bc tc C 5 cp liq. ۰ĸ Cc 246.6 5 Cryos. A\* 0.02274 1 cp vap. •ĸ consts. B° c, vap. te °C F 276.64  $T_{\mathbf{R}} = 0.75 \, T_{\mathbf{c}}$ grams/100 grams solvent 2-API 3-Lit. 5-Calc. by formula REFERENCES: 1-Dow 4-Calc, from det. data Dow SOURCE: Dow **PURIFICATION:** LITERATURE REFERENCES:

No. 132 o-Chlorobenzotrichloride STRUCTURAL FORMULA NAME o, a, a, a-Tetrachlorotoluene CCI 3 Molecular C7H4Cl4 Molecular Weight 229.930 Mole Ref. 99.98 % Pur. Formula Ref. Ref Ref. F, P. \*C F, P. 100% 29.37 1 dt/dP to \*C/mm <u>•K</u> g 25°C 461.466 5 B. P. \*C 0.0621 BP 4 264.27 760 mm 1 f 0.0384 5 to 100 185.01 4 g' ۰ĸ 30 149.67 4 30 mm 0.8878 4 10 122.6 5 'n, AHm cal/g 14.32 1 77.0 5 1 to ١ ΔHv cal/g Pressure •ĸ 25°C 66.04 5 1 0.0252 5 mm 25°C o 30 mm 58.02 47.90 5 te 1398. 5 ВP 5 m' ١ to Density g/ml 20°C te (d, e) 45.55 5 •K 'n 1.51870 1 5 45.19 o'  $\mathbf{d_4^t}$ 25 1.51312 ΔHv/T<sub>e</sub> 18.43 5 30 1.50754 4 Surface tension 150 to đ 71,24 5 1.54102 dynes/cm. 20°C 42.34 1 <u> 1 \_290 °C</u> • 0.0883 Ъ -0.00112 ā,-30 41.16 1 to 67.65 40 40.03 1 Ref. Index 150 °C 0.0643 n<sub>D</sub> 20°C 1.58362 [P] Parachor d g/ml 25 20°C 1.58142 1 386.2 ml/g 30 1.57032 t<sub>c</sub> 1 30 386.3 •c 511.0 5 40 386.5 4 "C" 0.5005 4 P<sub>c</sub> mm 24455. 5 Sugd. 388.8 5 MR (Obs.) 50.628 PV/RT Exp. L.1.%/wt. MR (Calc.) 50.393 25°C 1.0000 5 (nD-d/2) 0.82427 30 mm 1,0000 Dispersion Dielectric 8.989 BP 1 0.9100 5 Flash Point °C 0.8844 150 to te 5 7,11794 Fire Point tç 0.23 B 1315\_℃ 1951.37 M Spec. C AHc kcal/m 196.27 4 Ultra V A\* 150 to B\* 305 °C ΔHf 1.80509 5 X-Ray Dif. ΔFſ 1863.73 Infrared Viscosity Solubility in c centistokes Acetone to 20 5.4408 1 •c Carbon tet. 40 3, 16736 1 Benzene 60 2,10212 1 A' 15 to 7,47331 Ether 80 1.50080 1 B' (150 °C 2205. n-Heptane C' 30 218.1 В 897.09 to Ethanol Ā •c 90 3.63643 Water 2.11803 A'\* 20 to B'\*150 °C Decomp. 5 Water in Decomp. (BV) 2096.2 5 to Ac | 315 to 7.5302 5 (AV) °C Bc Ltc\_ 2395.6 •c cp liq. ۰ĸ 251.5 Cryos. A. 0.01813 c<sub>p</sub> vap. •ĸ consts. B° te °C c, vap. 294.96 5  $T_R = 0.75 T_c$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: Dow PURIFICATION: Distillation LITERATURE REFERENCES:

TABLE I. ALKYL AND HALO BENZENES

NAME	3, 4 - Di	chlorol	benzotrichloride	STRUCTURAL F	ORMULA		
Mole % Pur. 99.	68 Ref. N	folecul ormula		Molecular Weight 264.3	79	C1	
		Ref.			Ref.		Re
F. P. *C	25.82	1	dt/dP			f to	
F.P. 100%		+-	°C/mm		1 1	امقفا ا	
B. P. °C			25°C	2136.9	5	• :	!
760 mm	283,14	1	BP	0.0634	4	h	
100	202, 89	4	t <sub>e</sub>	0.0386	5	f' to	1
30	167, 30	4	30 mm	0.8918	4	g' <u>*K</u>	
10	140.1 95.	5	ΔHm cal/g	15,23	5	h¹	
1	73.	13	ΔHv cal/g		1	m to	
Pressure		_   _	25°C	68,15	5	n <u>•K</u>	1
mm 25°C	0.0045		30 mm	54.52	5	0	i
t <sub>e</sub>	1430.	5	BP	43.60	5	m' to	
Density			t <sub>e</sub> .	40.88	5	n' 'K	1
g/ml 20°C			te (d, e)	40.48	5	",	ŀ
d <sup>t</sup> 25 4 30	1.5854		ΔHv/T <sub>e</sub>	18.34	5		
	1, 6149		d 165 to	70.29	5	Surface tension	4, 70
a b	-0.0011		_e_!_310 <u>°C</u>	0.0943	5		41.70   1 40.58   1
		Ť	d'   25 to	70.55	5		39.50
Ref. Index		0 1	e'   165 °C	0.0958	5	Parachor [P]	
<sup>n</sup> D 20°C	1.5864		d <sub>c</sub> g/ml				22.2 4
30	1.5755	0 1	v <sub>c</sub> ml/g t <sub>c</sub> °C	534.0	_		22.5 4
"C"	0,4815	4		524.0	5	40 4	22.8 4
MR (Obs.)	<del></del>	4	P <sub>c</sub> mm	21355.	5	Sugd. 4	32.1 5
MR (Calc.		5	PV/RT			Exp. L.1.%/wt.	i
(nD-d/2)	0.7929		25°C	1.0000	5.	_ u.	1
Dielectric		+	30 mm BP	1.0000	5	Dispersion	
	( 0055		t	0.9075 0.8756	5	Flash Point C	
A 165 to B   390 °C		4 4	tc	0.0750		Fire Point	
c 13/2 -	172.0	l i	ΔHc kcal/m	<del>                                     </del>	+-	M. Spec.	İ
A* 165 to	<del></del>	+	ΔHf	1		Ultra V.	Į
B*  330 °C		5	ΔFf			X-Ray Dif. Infrared	1
к ——	_	-	Viscosity			<u> </u>	
c	_1	1	centistokes			Solubility in T	
t <sub>k</sub> to		- [	η 20 °C	4.5369	1	Carbon tet.	-
t <u>x   •</u> C			40 60	2.6711	1 1	Benzene	1
A'   25 to			80	1.8034 1.3221	li	Ether	1
B' 1165 °C	2111.80	5	BV 30 to	844, 66	4	n-Heptane	1
			A 1 90 °C	3.72982		Ethanol Water	
A'* 25 to B'*165 °C		1 5	(B <sup>v</sup> )  = to	-	•	Water in	
	+		41 ' ''				
Ac 330 to	7.4091	5	(A <sup>V</sup> )  °C	<del>                                     </del>	1		
Bc tc C	230.	5	c <sub>p</sub> liq. *K	1	1		
Cryos, Acconsts, B	0.0226		c <sub>p</sub> vap. *K				
t <sub>e</sub> °C F	316.2	5	c <sub>v</sub> vap.	1			
$T_{\mathbf{R}} = 0.7$			ш	<del></del>	т—	grams/100 gram	s solvent
REFEREN	CES: 1-Dov	v 2-A	PI 3-Lit. 4-	Calc. from de	et. da	ta 5-Calc. by form	
SOURCE:			Dow .				
PURIFICA	TION		Distillation				
	IRE REFER						
LITERATO	KE KEFE	CENCE	<b>5</b> :				

NAME	1-	Chlor	0-2-6	thylbenzene	No. 134 STRUCTURAL FORMULA				
	o-Chloroethylbenzene						C2H5		
							ار آر		1
Mole % Pur. 99	Mole Ref. Molecular C8H9Cl Molecular Weight 140.609								
			Ref.			Ref			Ref.
F.P. °C	-83.	32	1	dt/dP			f to		T
F. P. 1007 B. P. *C	-			*C/mm 25*C	11,216	5	g <u>*K</u> _		
760 mm	178.		1	BP	0.0529	4	f' to	ļ	+
100 30	111.3 81.6		4	t <sub>e</sub> 30 mm	0.0361 0.7434	5	g' to		
10	59.0		5	ΔHm cal/g	0.1454	Ť	h'	L	
Pressure	21.		-	ΔHv cal/g		$\vdash$	m to		
mm 25°C		309	5	25°C 30 mm	85.59 79.80	5	,	1	
Density	1236.		5	BP	68.14 65.89	5	m' to	ļ	$\vdash$
g/ml 20°0		5690	1	t <sub>e</sub> (d, e)	65, 65	5	n'   ' *K		
dt 25 4 30		05228 04763	1 4	AHv/T <sub>e</sub>	19.62	5	ļ!		+
	1.0	7538	4	d   80 to e   200 °C	89.65 0.1206	5	Surface tension dynes/cm. 20°C	34.44	5
B C Today		3925	4	d'   25 to	88.14	5	30 40	33.25 32.09	5
Ref. Index	_	52175	1	e' 80 °C	0.1021	5	Parachor [P]	33.07	+
25		51905 51688	1 1	d g/ml vc ml/g	0.346 2.89	5	20°C 30		
"C"	<del></del>	478	4	, c	399.8	5	40		1.
MR (Obs.	40.5	558	4	P <sub>c</sub> mm PV/RT	26384.	5	Exp. L.1.%/wt.	322.3	5
MR (Calc. (nD-d/2)		110 99330	5	25°C	1.0000	5	u.		
Dielectric				30 mm BP	1.0000 0.9540	5	Dispersion Flash Point *C		+
A 80 t		8169	4	t <sub>e</sub>	0.9405 0.255	5	Fire Point	57.0	5
B (230 °C	201.0		4 5	t <sub>c</sub>		Ť	M Spec.		
A*  80 to	1.4	15261	5	ΔHf ΔFf			Ultra V. X-Ray Dif.	Yes	1
B*   210 °C	1462.1	l	5	Viscosity		+	Infrared	515.	1
c   t	-			centistokes			Solubility in + Acetone	<b>60</b>	
e <sub>k</sub> to				7 ℃			Carbon tet. Benzene	80 80	
A'   0 to		32848	5				Ether	• • • • • • • • • • • • • • • • • • •	
B' L80 '	218.8		5	B <sup>v</sup> l to			n-Heptane Ethanol	00 00	
A'* 10 to		30780	5	A <sup>V</sup> 1 — °C			Water Water in		
B1# 80 °C	<del></del>	3867	5	(B <sup>V</sup> ) to					
Bc t *	1926.1		5	c <sub>p</sub> liq. •K					
Ce	250.		5	-					
Cryos. A' consts. B'	.			c <sub>p</sub> vap. °K					
t <sub>e</sub> °C F	199.0	)2	5	c <sub>v</sub> vap.					
$T_R = 0.$							f grams/100 gran		nt
	CES: 1-	Dow	2-AI Dow	PI 3-Lit. 4-0	alc. from de	t. da	ta 5-Calc. by for	mula	
SOURCE: PURIFICA	TION			illation				<del></del>	
LITERATU		FERF							
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TABLE I. ALKYL AND HALO BENZENES

Nο	2	_
NΩ		

NAME			1 - C1	nloro	-3-et	hylbenzene			STRUCTURAL	FORMUI	
		1	m-C	hlor	ethy	lbenzene			C2H5		
Mole % Pur. 98	. 83	3	Ref.	Moi For	lecula mula	C <sub>8</sub> H <sub>9</sub> C1	Molecular Weight 140.6	09	Cı		
					Ref.			Ref.			Ref.
F.P. °C F.P. 100°	%	-5	5.04	<u> </u>	1	dt/dP °C/mm			f to		
B. P. °C 760 mm 100 30 10		11 8 6	3. 7: 6. 04 6. 03 3. 2	ŀ	1 4 4 5	25°C BP t <sub>e</sub> 30 mm	14.250 0.0534 0.0362 0.7511	5 5 5	h   to g'   °K		
Pressure mm 25°C t <sub>e</sub>			1.0	10	5 5	ΔHv cal/g 25°C 30 mm BP	87.32 80.96 69.06 66.65	5 5 5	m to		
g/ml 20° dt 25 4 30	С		1.04	294 1826 1356	1 1 4	t <sub>e</sub> t <sub>e</sub> (d, e) ΔHv/T <sub>e</sub>	66, 48	5	n'		
a b				7166 3936	4 4	d 85 to e 200 °C d 25 to	89.93	5 5 5	Surface tension dynes/cm. 20°C 30 40	33.93 32.74 31.58	5 5 5
Ref. Inde n <sub>D</sub> 20° 25 30			1.5	1949 1707 1464	1 1 1	e'   85 °C d g/ml v ml/g t °C	0.1043 0.343 2.914	5 5 5	Parachor [P] 20°C 30	31.50	
"C"			0.6	1760	4	t <sub>c</sub> *C P <sub>c</sub> mm	406.9 26376.	5	40 Sugd.	322.3	5
MR (Obs. MR (Calc (nD-d/2)		4	0.50 10.50 0.90		4 4 4	PV/RT 25°C 30 mm	1.0000	5	Exp. L.1.%/wt. u. Dispersion		
Dielectri	-					BP	0.9532 0.9381	5	Flash Point *C	62.0	5
A 85 to B 1 235 °C			6. 9° 7. 3 0.	9082	5 5 5	te tc AHc kcal/m	0, 255	5	Fire Point  M. Spec.	.,	+-
A* 85 to B* 220 °				5007	5	ΔHf ΔFf Viscosity		<u> </u>	Ultra V. X-Ray Dif. Infrared	Yes 1084.	1
	С		7 3	1010		centistokes 7 °C			Solubility in Acetone Carbon tet. Benzene	80 80	
B'   85 °	<u>C</u>		8.	3818	5 5 5	B <sup>v</sup> to ↑ C		-	Ether n-Heptane Ethanol Water	80	
A'* 10 t		168	1.8	1406 1	5	(B <sup>V</sup> )  to	-		Water in		4
Acl 235 to Bc tc			7.3° 50.5	954	5 5 5	(A <sup>V</sup> )  °C c <sub>p</sub> liq. °K		-	1		
Cryos. A						c <sub>p</sub> vap. *K					
t <sub>e</sub> °C F			05.0		5	c <sub>v</sub> vap.	<u> </u>	<u> </u>	I	<b></b>	
$T_R = 0.$		_				DI 3 III	C-1- ( :		grams/100 gra		nt
REFEREN	ICE	:S:	1 - 1	Jow .	Z-A Do		Calc. from de	et. da	ata 5-Calc. by for	mula	
SOURCE:	TI	ON				stillation					
LITERAT		_		EPF			<del></del>		<del></del>		
		- '		-2	J						

No. 136 1-Chloro-4-ethylbenzene STRUCTURAL FORMULA NAME p-Chloroethylbenzene Molecular C8H9Cl Mole Molecular Ref. 99.86 Formula Weight 140,609 % Pur. Ref. Ref. F.P. °C F.P. 100% -62.57 dt/dP f to °C/mm <u>•</u>K 25°C 14.459 B. P. \*C h ВP 0.0535 760 mm 184.42 ı 0.0363 5 ſ١ to 100 116.47 4 ŧ, g¹ •ĸ 30 86.42 4 30 mm 0.7531 4 10 63.5 5 h' ∆Hm cal/g 15.72 ı 25.1 5 to AHv cal/g m Pressure •K n 25°C 87.29 mm 25°C 0.9957 5 o 30 mm 80.90 5 1250. 5 t<sub>e</sub> ВP 69.01 5 m¹ 1 to Density g/ml 20°C te (d, e) 66.58 5 n' •ĸ 1.04553 66.41 5 01 1.04083 25 ď4 1 ΔHv/T 5 30 19.55 1.03611 Surface tension 91.39 5 85 to 1.06433 dynes/cm. 20°C 32.78 205 •c 0.1214 5 . Ъ -0.03941 30 31.68 30.64 ı ď 25 to •C 89.89 5 1 40 1 Ref. Index e¹ 85 0.1041 5 20°C ďc [P] 1.51751 Parachor  $\mathbf{n}_{\mathbf{D}}$ g/ml 0.337 5 25 321.8 1.51517 20°C vc tc ml/g 2.967 5 30 1.51260 30 322.0 4 1 ·c 406.8 5 322.2 40 4 "C" 0.6498 4 P<sub>c</sub> mm 25926. 5 321.9 5 Sugd MR (Obs.) 40,736 PV/RT Exp. L. l. %/wt. MR (Calc.) (nD-d/2) 40.410 1.0000 25°C 5 u. 1.09475 30 mm 1.0000 Dispersion Dielectric BP 6.049 0.9531 1 Flash Point °C 62.0 5 t<sub>e</sub> 0.9380 0.255 T 85 to 6.98309 Fire Point tç B 1235 °C 1577.0 M Spec. Ultra V. C 200. AHc kcal/m Yes 1 ΔHf A\* 85 **to** 1.45161 1482.84 5 X-Ray Dif. ΔFf B\* 220 °C 516. Infrared ĸ Viscosity Solubility in centistokes Acetone tk t 00 to Carbon tet. •c 90 Benzene œ 0 to 7,32997 Ether œ B١ 85 °C 1781.96 5 n-Heptane œ вŸ C١ 218.0 5 Ethanol œ ÃV i °C Water A'\* 10 to B'\* 85 °C 1.80553 5 Water in (BV) 1684.02 5 to Ac | 235 to 7.38761 5 (AV) °C Bc \_tc\_ •c 1950.2 cp liq. ۰ĸ Cc 248.9 Cryos. A. 0.02519 1 c<sub>p</sub> vap. °K consts. B. te .C c<sub>v</sub> vap. 205.8 5  $T_R = 0.75 T_C$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: Dow PURIFICATION: Distillation LITERATURE REFERENCES:

TABLE I. ALKYL AND HALO BENZENES

NAME		2,5-	Dich	loro	p-xylene		$\Box$	STRUCTURAL FO	RMULA
Mole % Pur. 99	. 86	Ref.	Mo: For	leculi mula		Molecular Veight 175.05	58	CI CH3	
				Ref			Ref.		Ref
F, P. °C	6	68,24		1	dt/dP °C/mm			f to	
B. P. °C 760 mm 100 30 10 1 Pressure mm 25°C		224. 32 152. 84 120. 88 96. 3 55.		4 4 4 5 5	25°C BP te 30 mm  AHm cal/g  AHv cal/g 25°C 30 mm	107. 26 0. 0559 0. 0352 0. 8036 25. 85	5 4 5 4 4 5 5	h   to g'  *K h'   to n  *K o	
Density g/ml 20°( dt 25 d4 30	十	365.		5	BP te te (d, e) ΔHv/Te d 120 to	61.97 60.73 59.30 20.29	5 5 5 5	m¹ to n' °K o' Surface tension	
a b Ref. Inde	_				e   250 °C d'   25 to e'   120 °C	0.1078 84.34 0.0928	5 5	dynes/cm. 20°C 30 40	
<sup>n</sup> D 20°0 25 30					d g/ml vc ml/g tc°C	0.0720		Parachor [P] 20°C 30	
"C"					P <sub>c</sub> mm			40 Sugd. 35	9.5 5
MR (Obs. MR (Calc (nD-d/2)	)	45, 27	7	5	PV/RT 25°C 30 mm	1.0000	5	Exp. L.1.%/wt. u. Dispersion	7.5
A 120 to	,	7.16 797.4	727	4 4	BP t t	0.9400 0.9399	5	Flash Point *C Fire Point.	
A* 120 to	+	195. 1.71	859	4	ΔHc kcal/m ΔHf ΔFf			M. Spec. Ultra V. X-Ray Dif.	
B* 275 °C  K  c  t <sub>k</sub> x  A'   25 tc	- - - - -	7. 52	57 <b>5</b>	5	Viscosity centistokes 7 120 °C 130 140≠ 150≠	0,5533 0,5114 0,4785 0,4448	1 1 1 1	Infrared  Solubility in Acctone Carbon tet. Benzene Ether	
B'   120 °C	-	031.0 215. 2.07	549	5 5	B <sup>V</sup>   120 to A <sup>V</sup>   160 °C	517.02 Z.42647	4 4	n-Heptane Ethanol Water Water in	
Ac to Bc to Cc	,	929.3		5	(B <sup>V</sup> )  to (A <sup>V</sup> )  °C c <sub>p</sub> liq. °K		-		
Cryos, A		0.01	955	1	c <sub>p</sub> vap. *K				
te °C F	$\top$	250.76	,	5	c <sub>v</sub> vap.	1	1		
# some s	Щ.							grams/100 grams	solvent
				2-A	PI 3-Lit. 4-	Calc, from de	et. da	ata 5-Calc. by formul	
SOURCE:				Dow					
PURIFICA	TIC	N.			illation				
LITERAT			ERE						

No. 138 STRUCTURAL FORMULA o-Chlorocumene NAME l-Chloro-2-isopropylbenzene Molecular CoH11C1 Molecular Weight 154.635 Ref. Mole 100.0 % Pur. Formula Ref. Ref Ref. -74.42 F.P. °C F.P. 100% 1 dt/dP f to °C/mm g •ĸ 19.850 5 25°C B. P. °C h ВP 0.0541 4 760 mm 191.08 1 0.0363 5 ſ t<sub>e</sub> to 100 122.43 4 g' °K 30 92.05 4 30 mm 0.7614 4 10 68.8 5 h' ∆Hm cal/g 30.0 5 to ΔHv cal/g m Pressure •ĸ n 25°C 81.70 5 mm 25°C 0.705 5 ٥ 75.06 30 mm 5 1267. 5 t<sub>e</sub> ВP 63,80 5 to m 1 Density g/ml 20°C 5 61.48 te (d, e) n' •ĸ 1.03414 5 61.27 1.02950 o 25 1 d4 AHV/T 5 19.54 30 1.02484 4 Surface tension 1 90 85.52 5 to 1.05270 34.08 a b dynes/cm. 20°C 210 •c 0.1137 5 -0.03928 4 30 32.87 5 ď٠ to C 25 84.18 5 1 40 31.70 5 e¹ Ref. Index 90 0.0991 5 20°C 1.51678 1 Parachor [P]  $\mathbf{n}_{\mathbf{D}}$ d g/ml vc ml/g tc °C 0.333 5 25 1.51437 20°C 3.003 5 30 1.51189 4 30 403.5 5 40 "C" 0.6561 4 P<sub>c</sub> mm 23024. 5 361.3 5 Sugd. MR (Obs.) 45.24 4 PV/RT Exp. L.1.%/wt. 45.189 MR (Calc.) 1.0000 25°C 5 (nD-d/2)0.99962 30 mm 1.0000 5 Dispersion Dielectric BP 0.9513 Flash Point °C 0.9360 5 A 90 to 6.99207 4 Fire Point 0,253 t<sub>c</sub> 1599.61 B <u>L235 °C</u> M Spec. Ultra V c 198.00 4 AHc kcal/m ΔHf A\*| 90 to 1.49897 5 X-Ray Dif. ΔFf B\* 230 °C 1505.37 Infrared ĸ Viscosity Solubility in c centistokes Acetone to tk | Carbon tet. •c Benzene 0 to 7.33951 Ether В' <u>-90 °C</u> 1807.5 n-Heptane Вv C' Ethanol 216.3 to ĀV A1\* •с Water A'\* 10 to B'\* 90 °C 1.85437 5 Water in 1709.8 (BV) to Ac | 235 to 7.39236 5 (A<sup>V</sup>)1 °C Bc Ltc\_ •c 1964.5 liq. Сp ۰ĸ Cc 244.8 Cryos. A\* c<sub>p</sub> vap. ۰ĸ consts, B° c<sub>v</sub> vap. te °C F 213,28 5  $T_{\mathbf{R}} = 0.75 \, T_{\mathbf{c}}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det. data 5-Calc, by formula SOURCE: Dow **PURIFICATION:** Distillation LITERATURE REFERENCES:

TABLE I. ALKYL AND HALO BENZENES

							No. 1	
NAME _	p-Chloro					STRUCTURAL	FORMUL H <sub>3</sub> )2	.A
	1-Chloro	-4-18	opropylbenzene					
Mole % Pur. 99.9	Ref. Moi	leculi mula	r C <sub>9</sub> H <sub>11</sub> C1	Molecular Veight 154.6	35			
		Ref.			Ref.		·	Ref.
F. P. *C	-12.27	1	dt/dP			f to		
F.P. 100%			°C/mm	24 -24	_	g  • <u>K</u>		
B. P. *C		١. ا	25°C BP	26,774 0,0550	5 4	h		
760 mm 100	198.30 128.49	1 4	t <sub>e</sub>	0.0367	5	f' to		
30	97.61	4	30 mm	0.7739	4	g' <u>*K</u>		
10 1	74.0 34.5	5	ΔHm cal/g			h'		
Pressure			ΔHv cal/g		_	m to		
mm 25°C	0.5117	5	25°C 30 mm	83.41 76.10	5 5	0		
te	1274.	5	BP	64.48	5	m¹ to		$\vdash$
Density g/ml 20°C	1,02078	1	t <sub>e</sub> t <sub>e</sub> (d, e)	61.66 61.42	5	n' K		
<sub>d</sub> t 25	1.01622	1	'e (5, 5)	19.29	5	o'		
4 30	1.01165	4	ΔHv/T <sub>e</sub>	87.71	5	Surface tension		
a b	1.03902 -0.0 <sub>3</sub> 912	4	e 1 220 °C	0.1189	5	dynes/cm. 20°C	32.36	5
Ref. Index	3,12	1	d! 25 to	85.93	5	30 40	31.21 30.10	5
n <sub>D</sub> 20°C	1.51174	1		0,1007	5	Parachor [P]		$\top$
- 25	1.50938	1	d g/ml v ml/g	0.340 2.94	5 5	20°C		
"C"	1.50678	4	vc ml/g tc °C	412.0	5	30 40		
MR (Obs.)	0.6585	4	P <sub>c</sub> mm	22454.	5	Sugd.	361.3	5
MR (Calc.)	45.46 45.028	5	PV/RT			Exp. L.1.%/wt.		
(nD-d/2)	1.00127	4	25°C 30 mm	1.0000	5	u. Dispersion		
Dielectric			BP	0.9431	5	Flash Point °C	72.0	5
A 95 to	6. 98784	5	te te	0.9261 0.24	5	Fire Point	-	
B   240 °C	1623.51	5	ΔHc kcal/m	<u> </u>	+	M. Spec.	Yes	1
A* 95 to	1.50326	5	ΔHf			Ultra V. X-Ray Dif.	1	
B* 240 °C	1532.23	5	ΔFf		+-	Infrared	788.	1
c			Viscosity centistokes			Solubility in +		
t <sub>k</sub> Tto			η •c			Acetone Carbon tet.	00 00	
<u>v</u> •c	2 33503	1_				Benzene	<b>00</b>	
A'   0 to B'   95 °C	7.33502 1834.52	5			$\perp$	Ether n-Heptane	00 00	
c'	215.6	5	B <sup>V</sup> to C			Ethanol		
A'* 15 to	1.84670	5	=v			Water Water in		
B'* 95 °C	1736, 32	5	(B <sup>V</sup> )  to				<del>                                     </del>	$\top$
Ac 240 to	7.3880 1992.7	5	(A <sup>V</sup> )  °C	<b>.</b>	+-			
Cc	244.2	5	c <sub>p</sub> liq. *K				1	1
Cryos. A° consts. B°			c <sub>p</sub> vap. °K					
te °C F	221.13	5	c <sub>v</sub> vap.			ļ	1	
$T_{\mathbf{R}} = 0.79$	<b>)</b>		ш			grams/100 gra	ms solve	nt
	ES: 1-Dow	2-A	PI 3-Lit. 4-	Calc. from d	et. da			
SOURCE:		Dow						
PURIFICAT	ION:	Dist	tillation					
LITERATU	RE REFERE	NCE	S:					

No. 140 Bromobenzene STRUCTURAL FORMULA NAME Molecular C6H5Br Molecular Mole Ref. % Pur. 99.97 Weight 157.016 Ref. Ref. -30.82 1 F, P. \*C dt/dP f to F.P. 100% °C/mm g <u>•K</u> 25°C 3.887 B. P. \*C h 0.05177 BP 4 760 mm 156.06 1 0.03711 4 f to 100 te 90.54 1 g' \_K 30 61.70 4 30 mm 0.7218 10 42,07 h\* ∆Hm cal/g 16.18 4 3.7 4 to ΔHv cal/g m Pressure •ĸ n 69.23 25°C 5 mm 25°C 5 4.182 o 30 mm 65.50 5 1165.0 ŧ, 4 BP 56.25 m' to ١ Density g/ml 20°C 54.77 4 te (d, e) n' •ĸ 1.49500 54.50 5 01 25 ď4 1.48824 AHV/T 19.24 5 30 1.48148 Surface tension ī d 60 71.61 4 to 1,52203 31 dynes/cm. 20°C 36.34 •c 0.0991 71.77 4 175 -0.00135 Ъ 4 30 35.11 5 to 15 40 33.84 5 e¹ Ref. Index •c 60 0.1016 1.55972 20°C [P] Parachor n<sub>D</sub> d<sub>c</sub> g/ml 0.4853 3 25 1.55709 20°C 258.4 5 ml/g 2.061 t<sub>c</sub> 30 1.55426 1 30 •c 397. 3 40 "C" 0.4890 4 P<sub>c</sub> mm 33912. 3 Sugd. 258.0 5 MR (Obs.) 33.97 PV/RT Exp. L.1.%/wt. MR (Calc.) **34**.38 1.0000 25°C (nD-d/2) 5 u. 0.81297 30 mm 1,0000 Dispersion 5.308 Dielectric 1 BP 0.9491 Flash Point °C 0.9370 6.91444 t<sub>e</sub> 60 to Fire Point 0.3026 1474.06 t<sub>c</sub> B 1130 .C M Spec. Ultra V С 209.4 AHc kcal/m ΔHf A\* 60 to B\* 200 °C 1.44788 4 X-Ray Dif. Yes ΔFf 1380.0 Infrared Yes 1 ĸ 37. Viscosity Viscour, centistokes °C Solubility in -0.14394 t<sub>k</sub> | 200 to t<sub>x</sub> | 340 °C Acetone 207. Carbon tet. 340 °C 464. Benzene 0 to 7, 35311 5 Ether B١ <u>\_60 °C</u> 1696.4 n-Heptane C١ 227. 5 В Ethanol to A'\* 10 to B'\* 60 °C •c Water 1.88241 5 Water in (BV) 1596.3 to Ac | 190 to 7.35936 (A<sup>V</sup>) 4 °C ·c Bc \_tc\_ 1853.57 liq. Сp ۰ĸ Cc 258.2 Cryos. A. 0.02039 cp vap. •ĸ consts. B° c, vap. f .C 173.67 4 grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: Dow **PURIFICATION:** Distillation LITERATURE REFERENCES: 3 Young; 3' Timmermans

TABLE I. ALKYL AND HALO BENZENES

NAME			o-Di	bron	ober	zene			STRUCTURAL FORMULA			
			1.2-	Dibr	omob	enzene			^			
Mole % Pur. 99.	80	T	Ref.			AT C.H.Br	Molecular Weight 235.92	,,	Br			
W Full, 77.		_	<u> </u>	F 01	Ref	,,,,,	Weight 233. 72	Ref.	T		Ref.	
F. P. *C	$\top$		7.13		1	dt/dP	<u> </u>			ĺ		
F.P. 1009	6					°C/mm	i		g to			
B. P. °C						25°C BP	69.635	5	h			
760 mm			5.46		1	t <sub>e</sub>	0.0585 0.0381	4 5	f' to		$\top$	
30	- {		0.81 7.55		4 4	90 mm	0.8352	4	g' <u>K</u>			
10		9	2.1		5	ΔHm cal/g	12.80	4	h'			
1	+	4	9.2		5	ΔHv cal/g		<u> </u>	m to			
Pressure mm 25°C			0.19	27	5	25°C	55.83	5	" <u>*K</u>			
te		131			5	30 mm BP	51.33 43.15	5			$\perp$	
Density	T					t.	41.44	5	m' to			
g/ml 20°0	۱ ۵		1.98		1	t <sub>e</sub> (d, e)	41.19	5	"	1		
dt 25			1.96		1 4	ΔHv/T <sub>e</sub>	18.64	5	Surface Assista		+	
	$\top$		2.01	465	4	d 115 to	60.24	5	Surface tension dynes/cm. 20°C	43.02	1	
ь	1		0.00	152	4	d 250 °C to	0, 0758 57, 05	5	¥ 30	41.80	1	
Ref. Index					١. ا	e'   115 °C	0.0486	5	40	40.64	1	
n <sub>D</sub> 20°0	٦		1.61 1.60		1 1	d <sub>c</sub> g/ml	0.644	5	Parachor [P] 20°C	304.5	4	
30			1.59		1	v_mi/g	1.55 486.6	5	30	304.6	4	
"C"			0.40	26	4	tc *C Pc mm	31591.	5	40 Sugd.	305.2 308.9	4 5	
MR (Obs.			1.51		4	PV/RT	1	<del>-</del>	Exp. L.1.%/wt.	300.7	+	
MR (Calc. (nD-d/2)	9		1.83 0.62		5 4	25°C	1.0000	5	u.	}		
Dielectric	+		7. 79		1	30 mm BP	1.0000	5	Dispersion			
A 115 to	-		7.10		4		0.9199	5	Flash Point C			
B 295 °C			5.77		4	te tc	0.245	5	Fire Point			
С	1	20	7.0		4	ΔHc kcal/m ΔHf			M. Spec. Ultra V.			
A# 120 to			1.80	879	5	ΔFf			X-Ray Dif.			
B*[280 °C	- '	173	٥.			Viscosity			Infrared		+	
!	_					centistokes		١.	Solubility in Acetone	<b>*</b>		
						7 20 °C	1.4686	1 1	Carbon tet.	∞ ∞		
A'   20 to			7,45	706	5	60	0.8062	1	Benzene Ether	<b>60</b>	-	
B' 120 °C		206	3.06		5	80	0.6470	1	n-Heptane	<b>80</b>		
C'	+		7.4		5	B <sup>V</sup>   30 to A <sup>V</sup>   90 °C	583.85 2.15788	4	Ethanol Water	∞		
A'* 20 to B'*120 *0			2.12 2.59		5	(BV)	- 2.15766	1	Water in			
Ac 295 to			7.52		5	(A <sup>V</sup> )  °C	1				1	
Bc tc *C		227	9.0		5		<u> </u>	<del>                                     </del>	1			
	4	20	0. 1		5	P						
Cryos. A'			0.01	901	1	c <sub>p</sub> vap. *K						
t <sub>e</sub> °C F	بلي		1.19		5	c <sub>v</sub> vap.	1	<u> </u>	L	L		
$T_R = 0$ .		<u> </u>							grams/100 gra		nt	
	CE	S:	1-1	ow			Calc. from de	t. da	ata 5-Calc. by for	mula		
SOURCE:					Do	<del></del>						
PURIFICA				<b></b>		tillation						
LITERAT	JK	<b>.</b>	KEP.	eke.	NCES	<b>5</b> :						

No. 142 NAME o-Bromotoluene STRUCTURAL FORMULA 1-Bromo-2-methylbenzene CH<sub>3</sub> Molecular C7H7Br Rr Mole Molecular Ref. Weight 171.042 99.96 Formula % Pur. Ref. Ref Ref -27,73 F.P. °C dt/dP f to °C/mm °K g 25°C 11.0514 B. P. \*C h BP 0.0546 760 mm 181.69 1 0.0376 f 5 to 100 112.66 4 g' 30 30 mm 82,27 4 0.7603 5 10 59.1 5 h ΔHm cal/g 14.17 4 20.5 5 1 to AHv cal/g Pressure n ۰ĸ 25°C 68.84 mm 25°C 1.358 30 mm 64.36 5 1228. te 5 BP 54.49 5 m to Density g/ml 20°C 1 t<sub>e</sub> (d, e) 52.58 5 •ĸ n' 1.42322 52.41 5 0 25 1.41774 d4 Δ̈́Hv/T<sub>e</sub> 5 18.90 30 1.41223 4 Surface tension 85 72.52 5 1.44514 dynes/cm. 20°C 35.85 1 200 •c 0.0993 • 5 Ъ 4 34.79 33.68 30 1 ă۰ 25 to 70.79 5 40 1 e' Ref. Index 85 0.0782  $\mathbf{n}_{\mathbf{D}}$ d c m. 20°C 1.55650 (P) Parachor g/ml 0.468 5 25 1.55412 294.1 20°C ml/g 2,138 30 1.54187 1 30 294.1 4 419.7 5 40 294.0 4 "C" 0.5109 4 P<sub>c</sub> mm 28151. 5 Sugd. 297.0 5 MR (Obs.) 38.662 4 PV/RT Exp. L.1.%/wt. MR (Calc.) 38.690 25°C 1.0000 (nD-d/2) 0.84489 4 30 mm 1.0000 Dispersion Dielectric BP 0.9439 Flash Point °C 0.9277 **│** 80 to t. 6.90847 Fire Point t<sub>c</sub> 0.24 5 B 1245 °C 1549.39 M Spec. C 203.0 AHc kcal/m Ultra V **AHf** A\* | 80 to 1.47860 X-Ray Dif. ΔFf B\* 1215 °C 1458.88 Infrared Viscosity Solubility in c centistokes Acetone to 20 1.0045 1 Carbon tet. ·c 40 0.7706 1 Benzene œ 0.6189 A' | 20 to 7.25065 60 1 Ether 00 80 0.5131 В¹ \_8<u>0 °C</u> 1750,76 n-Heptane B<sup>V</sup> | 30 A<sup>V</sup> | 90 C' 221.0 488.48 4 Ethanol to •c Z. 42771 4 Water A1# 20 to 5 1.81035 (BV) Water in B'\* 80 °C 1651.40 to (AV) Ac | 245 to 7.3209 5 °C Bc \_tc\_ •c 1942.3 cp liq. ۰ĸ 256.8 Cryos. A. 0.02025 c<sub>p</sub> vap. •ĸ consts. B° t. •C c, vap. 202.69 5  $T_R = 0.75 T_c$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula Dow SOURCE: PURIFICATION: Distillation LITERATURE REFERENCES:

TABLE I. ALKYL AND HALO BENZENES

<del></del>							No. 143	3
NAME	p-Bromo	tolue	ne			STRUCTURAL	FORMUL	A
	l-Bromo	-4-m	nethylbenzene			CH3		1
					$\neg \neg$			
Mole % Pur. 99.	Ref. Mol	ecul		Molecular	,			İ
% Pur. 99.	74 1 1 1 101		' ' '	Veight 171.04	Ref	T	<del></del>	Ref.
F. P. *C	24,84	Ref.	44/47	<u> </u>	Kel.			
F.P. 100%		H	dt/dP °C/mm			f to		
B. P. *C			25°C	12.934	5	h		
760 mm	184.35	1	BP t <sub>e</sub>	0.0541 0.0368	4 5	f' to		
100 30	115.62 85.18	4	30 mm	0.7631	4	g'• <u>K</u>		
10	61.9	5	ΔHm cal/g	20,71	4	h'		
11	22.9	5	ΔHv cal/g		Ť	m to		
Pressure mm 25°C	1.149	5	25°C	69.50	5	n	İ	1
t <sub>e</sub>	1243.	5	30 mm BP	65.18 55.87	5			$\vdash \vdash$
Density			t.	54.02	5	m' to		
g/ml25 °C	1.39953	1 1	t <sub>e</sub> (d, e)	53.86	5	0'		
d <sup>t</sup> 30 4 35	1.38729	i	ΔHv/T <sub>e</sub>	19.29	5	Surface tension		$\vdash$
a	1.43023	4	d 85 to e 200 °C	73.18 0.0939	5	dynes/cm. 20°C	35.47	1
ь	-0.00123	4	d' 25 to	71.29	5	30 40	34.16 33.04	1
Ref. Index	1.54768	ı	e'   85 °C	0.0718	5	Parachor [P]	33,04	1
<sup>n</sup> D 25 °C	1.54433	i	d <sub>c</sub> g/ml	0.456	5	20°C	296.95	4
50	1.53700	1	vc ml/g tc °C	2.193 419.7	5	30 40	296.77	4
"C"	0.5119	4	P <sub>c</sub> mm	28949.	5	Sugd.	296.93 297.0	5
MR (Obs.) MR (Calc.)	38.78 38.690	4 5	PV/RT		_	Exp. L.1.%/wt.		
(nD-d/2)	0.74792	4	25°C 30 mm	1.0000	5	u.	1	
Dielectric	5.829	1	BP BP	1.0000 0.9482	5	Dispersion		$\vdash$
A 85 to	7.00762	4	t <sub>e</sub>	0.9332	5	Flash Point *C Fire Point		
B (250 °C	1612.35	4	t <sup>e</sup>	0,253	5	M. Spec.	<u> </u>	$\vdash$
A* 85 to	206.36	4	ΔHc kcal/m ΔHf			Ultra V.		
B*[215 °C	1.56345	5	ΔFf			X-Ray Dif. Infrared		
K			Viscosity			Solubility in +	<del></del>	
t <sub>k</sub> - to			rentistokes 7 30 °C	0.78163	1	Acetone		
€ °C			40	0.69285	1	Carbon tet. Benzene		
A'   25 to	7.35604	5	60 80	0.56238 0.47080		Ether	<b>80</b>	3
B' 1_85_°C	1821.91 224.7	5	DV 20.45	464.06	4	n-Heptane Ethanol		
A'* 25 to	1.90860	5	A   90 °C	2. 35897		Water solid pha	e 0.011	1
B'* 85 °C	1719.24	5	(B <sup>V</sup> )  to			Water in	<del> </del>	$\vdash$
Ac 250 to Bc to *C	7.4238	5	(A <sup>V</sup> )  °C		<u> </u>	4		
Bc tc C	2011.3 259.3	5	c <sub>p</sub> liq. *K					
Cryos. A*		Ť	c <sub>p</sub> vap. *K					
consts. B		<u></u>	n -					
te °C F	205.69	5	c <sub>v</sub> vap.	L		L		<u> </u>
$T_{R} = 0.75$						f grams/100 gra		it
	ES: 1-Dow			Calc. from de	t. d	ata 5-Calc, by for	mula	
SOURCE:		Dow						
PURIFICAT	CION:	Dist	illation, absorp	tion				
LITERATU	RE REFERE	NCE	S: 3 Lange					
l								
}								
1								
L								

No. 144 STRUCTURAL FORMULA NAME 1-Bromo-2-ethylbenzene o-Bromoethylbenzene C<sub>2</sub>H<sub>5</sub> Molecular C8H9Br Molecular Mole Ref. Weight 185,068 99.93 % Pur. Formula Ref. Ref. Ref. -67.92 F.P. C 1 dt/dP f -67.89 \*C/mm ۰ĸ 1 g 25°C 26.06 B. P. °C h 0.0556 BP 4 760 mm 199.30 ſ١ 5 0.0374 to 100 128.76 4 g' •K 30 30 mm 0.7803 4 97.61 4 10 73.8 h' 5 ΔHm cal/g 1 34.1 to ΔHv cal/g Pressure •ĸ n 25°C 68,99 mm 25°C 0,5311 5 o 30 mm 63.07 5 t<sub>e</sub> 1263. 5 BP 52.75 5 Density g/ml 20°C m to te te (d, e) 50.70 5 •<u>K</u> 'n 1.35488 50.45 5 0 25 30 d4 1.34917 ΔHv/Te 5 18.95 1.34345 Surface tension 95 to 72.98 5 1.37772 dynes/cm. 20°C 35.02 1 215 <u>•c</u> 0.1015 ь -0.00114 33.98 1 ď٠ 30 71.02 to 5 40 32.95 1 e¹ Ref. Index 95 0.0815 5  $\mathbf{n}_{\mathbf{D}}$ 20°C 1.54856 1 [P] d g/ml vc ml/g tc °C Parachor 0.444 5 25 1.54624 20°C 1 332.3 2.34 30 30 1.53429 1 332.6 4 427.4 5 40 332.6 4 "C" 0.5295 4 P<sub>c</sub> mm 5 25030. Sugd. 336.0 5 MR (Obs.) 43.419 PV/RT Exp. L.1.%/wt. MR (Calc.) 43,308 25°C 1.0000 5 (nD-d/2) 0.87112 4 30 mm 1.0000 Dispersion Dielectric 4.580 BP 1 0.9346 Flash Point °C 0.9167 T 95 to 6.96150 t<sub>e</sub> Fire Point t<sub>c</sub> 0,250 1250 °C 1621.24 M Spec. С 198.0 4 AHc kcal/m Ultra V A\* | 95 to 1.56782 ΔHf 5 X-Ray Dif. ΔFf B\* 235 °C 1533.46 Infrared Viscosity Solubility in c centistokes Acetone °C to 20 1.1677 1 ٠ċ Carbon tet. œ 0.8794 40 1 Benzene œ 60 0.6969 1 A' | 10 to 7,30702 Ether 00 80 0.5737 1 B' |\_95 °C 1831.9 5 n-Heptane œ c١ 216.6 5 51<u>3</u>.03 В 30 4 Ethanol to A | 90 •c Water Z. 30616 0.0039 1 A'\* 15 to B'\* 95 °C 1.89534 5 (BV) Water in 1733.0 to Ac | 250 to 7.3664 5  $(A^{V})_{1}$ °C Bc \_tc\_ •c 2006.3 cp liq. ۰ĸ 248.6 Cryos. A 0.01811 c<sub>p</sub> vap. •ĸ consts. B. c, vap. te °C 222.0 5  $T_{R} = 0.75 T_{C}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: Dow PURIFICATION: Distillation LITERATURE REFERENCES:

TABLE I. ALKYL AND HALO BENZENES

	Bromo-							5	
		4-e	thylbenzene			STRUCTURAL FORMULA			
					$\dashv$	Ç2H5		•	
	· I · · · · · ·		lbenzene		∤				
Mole Re	f. Mole	cul	C <sub>8</sub> H <sub>9</sub> Br	Molecular					
% Pur. 100.0 1	<del></del>		08.1921	Weight 185.06	_	<u> </u>		_	
<u> </u>		Ref.			Ref.	1-1-1		Ref.	
F.P. *C -43. F.P. 100%	47	1	dt/dP *C/mm			f to	1		
B. P. *C		$\dashv$	25°C	38, 511	5	g '* <u>K</u>	1		
760 mm 205.		4	BP	0.0555	4	h		-	
100 134. 30 103.		4 5	t <sub>e</sub> 30 mm	0.0370	5 4	f' to	İ		
10 79.		5		0.7799	-	h'			
1 40.		5	ΔHm cal/g	<del></del>	$\vdash$	m to			
Pressure	3424	5	ΔHv cal/g 25°C	72.40	5	n <u>K</u>			
mm 25°C 0.	3424	5	30 mm	65.15	5	<u> </u>			
Density		$\dashv$	BP t <sub>e</sub>	54.17 51.95	5	m¹ to			
g/ml 20°C   1.	34226	1	te (d, e)	51.67	5	n'  K_			
	33653 33079	1 4	ΔHv/T <sub>e</sub>	19.17	5			-	
<del></del>	36518	4	d 105 to	76.35	5	Surface tension dynes/cm. 20°C	35, 27	5	
b -0.	00115	4			5	¥ 30	34.08	5	
Ref. Index			e' 105 °C		5	40	32.92	5	
1 D 1	54475 54228	1	d <sub>c</sub> g/ml	0.434	5	Parachor [P] 20°C			
1 1	53981	4	v_mi/g	2.305 433.9	5	30		1	
"C" 0.	5311	4	tc *C Pc mm	25545.	5	40 Sugd.	336.0	5	
MR (Obs.) 43.		4	PV/RT	23343.	-	Exp. L. 1. %/wt.	330.0	Ť	
	308 87401	5 4	25°C	1.0000	5	u.			
Dielectric 0.	87401	-	30 mm BP	1.0000 0.9338	5	Dispersion			
<del></del>	98209	4	l t	0.9150	5	Flash Point *C Fire Point			
B 260 °C 1632.		4	t <sub>c</sub>	0.290	5	M. Spec.			
C 193.		4	ΔHc kcal/m ΔHf			Ultra V.			
A* 105 to 1. B* 240 °C 1546.	58901	5	ΔFf			X-Ray Dif. Infrared	510.	1	
K     1310.	.		Viscosity			Solubility in +	310.	۰	
t,to			centistokes n 20 °C	1.0545	1	Acetone	•	ĺ	
tk to	ì	l	40	0.8119	1	Carbon tet. Benzene	<b>60</b>	ĺ	
A'   15 to   7.	32890	5	60 80	0.6574 0.5485	1	Ether	<b>8</b> 0	İ	
B' 105 °C 1844.	79	5	BV 30 to	471.03	4	n-Heptane Ethanol	∞	ĺ	
	91928	5	A'   90 °C	Z. 40558		Water	<b>∞</b>		
B'* 105 °C 1748.		5	(B <sup>V</sup> )  to	-		Water in		<u> </u>	
Ac 260 to 7.	3807	5	(A <sup>V</sup> )  °C						
Bc tc °C 2011.	2	5	c <sub>p</sub> liq. °K						
	01336	1	1					ĺ	
consts. B°			c <sub>p</sub> vap. *K c <sub>u</sub> vap.						
t <sub>e</sub> °C F 228.	2	5	~ ·=P.	1	L	L <u>.</u>			
$T_R = 0.75 T_c$						grams/100 gra		<u>t</u>	
	-Dow			-Calc. from de	t. da	ta 5-Calc. by for	mula		
SOURCE:		Do							
PURIFICATION:			stillation						
LITERATURE RE	FEREN	CES	5:						

No. 146 STRUCTURAL FORMULA NAME o-Bromocumene 1-Bromo-2-isopropylbenzene CH(CH3)2 Molecular C9H11Br Br Mole Ref. Molecular % Pur. 99.9 Weight 199.904 Ref. Ref Ref. F.P. \*C F.P. 100% -59.27 1 dt/dP to °C/mm g <u>•ĸ</u> 25°C 45,454 B. P. °C h BP 0.0563 760 mm 210.24 0.0374 5 f' to te 100 138,77 4 g' •ĸ 107.13 30 4 30 mm 0.7929 10 5 83.0 h' ١ ∆Hm cal/g 42.5 5 to m ı ΔHv cal/g Pressure °K 25°C n 67.09 1 5 mm 25°C 0.2899 o 30 mm 60.45 5 t<sub>e</sub> 1284. 5 BP 50.21 5 Density m ١ to te (d, e) 48.10 5 g/ml 20°C n' °K 1.30195 5 47.84 ď4 1.29636 1 AHV/T 18.96 5 30 1.29076 5 Surface tension đ 105 71.10 5 to 1.32431 4 dynes/cm. 20°C 35,58 5 1 225 •c 0.0994 5 -0.00112 34.37 4 30 1 105 69.11 to 5 40 33.20 Ref. Index e' 0.0808 5 20°C n<sub>D</sub> 1.54084 (P) 1 Parachor d<sub>c</sub> g/ml 0.447 25 1.53853 20°C ν<sub>ς</sub> ... ml/g 2.237 30 1.53592 4 30 427.5 5 40 "C" 0.5438 4 c mm P 5 5 22157. Sugd. 375.0 MR (Obs.) 48.07 PV/RT Exp. L.1.%/wt. MR (Calc.) 47.926 25°C 1.0000 5 (nD-d/2) u. 0.89035 30 mm 1,0000 Dispersion Dielectric BP 0.9294 5 Flash Point °C te 0.9097 105 to 6.99354 Fire Point tç 0.244 255 °C 1666.7 M Spec. C 195. 4 AHc kcal/m Ultra V. ΔHf A\* | 105 to 1.63505 5. X-Ray Dif. ۵Fí B\* 245 °C 1580.8 Infrared 1354. 1 ĸ Viscosity Solubility in centistokes Acetone to Carbon tet. •c 80 Benzene 90 15 to 7.34107 Ether œ L105 °C 1883.32 n-Heptane 214. to Ethanol  $\hat{\mathbf{A}^{\mathbf{V}}}$ •c Water 0.0013 1 A1# 20 to 1.95932 5 Water in B'# 105 °C 5 (BV) 1784.6 to Ac | 255 to 7.3931 5 (AV) °C Bc \_tc\_ •c 2043. cp liq. ۰ĸ 243. Cryos. A. •ĸ cp vap. consts. B. c, vap. te C 234.0 5  $T_{R} = 0.75 T_{C}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: Dow PURIFICATION: Distillation LITERATURE REFERENCES:

TABLE I. ALKYL AND HALO BENZENES

							No. 147
NAME	p-Brome	cum	ene			STRUCTURAL	FORMULA
	l -Bromo	-4-i	sopropylbenzene	· ·		сн(сн	3 <sup>)</sup> 2
Mole	Ref. Mol	ecul	ar N	Molecular			
% Pur. 99.	95 l For	mul		eight 199.90	4	Br_	
		Ref.			Ref.		Re
F. P. °C	-22.37	1	dt/dP			f to	
F.P. 100%	-22.35	1	°C/mm 25°C	65.79	5	g '° <u>K</u>	
B. P. °C 760 mm	219.02	ı	BP	0.0571	5	h	
100	146.37	4	t <sub>e</sub>	0.0373	5	f' to	
30 10	114.12 89.45	4 5	30 mm	0.8091	4	h' =	
1	48.1	5	ΔHm cal/g	10.46	4	m to	<del>                                     </del>
Pressure			ΔHv cal/g 25°C	68,24	5	n    •K_	
mm 25°C	0.1969	5	30 mm	61.44	5	0	
Density	1	<u> </u>	BP	51.23 49.05	5	m' to	
g/ml 20°0		1	te (d, e)	48.81	5	n'   L <u>*K</u> _	
dt 25	1.27995	1 4	ΔHv/T <sub>e</sub>	18.96	5		
. 30	1,30695	4	d 115 to	72.55	5	Surface tension dynes/cm. 20°C	33.20 1
ь	-0.00108	4		0.0973 70.15	5	<b>y</b> 30	32.19 1
Ref. Index			e' 115 °C	0.0763	5	40	31.19 1
n <sub>D</sub> 20°C	1.53617	1   1	d <sub>c</sub> g/ml	0.419	5	Parachor [P] 20°C	373.3 4
30	1.52233	i	vc ml/g tc °C	2.38 438.9	5	30	373.6 4
"C"	0.5464	4	P <sub>c</sub> mm	22384.	5	40 Sugd.	373.9 4 375.0 5
MR (Obs.)		4	PV/RT	22304.	<u> </u>	Exp. L.1.%/wt.	3.5.0
MR (Calc. (nD-d/2)	) 48.126 0.89350	5 4	25°C	1.0000	5	∥ ˙ u.	}
Dielectric	5,503	1	30 mm BP	1.0000 0.9278	5	Dispersion	ļ
A 115 to		4	ll t	0.9073	5	Flash Point C Fire Point	
B 1260 °C		4	t <sub>c</sub>		<u> </u>	M. Spec.	
A* 115 to	197.0	5	ΔHc kcal/m ΔHf			Ultra V.	1 1
B*  255 °C		5	ΔFf			X-Ray Dif. Infrared	
K	-1		Viscosity		1	Solubility in +	<del>                                     </del>
t <sub>k</sub>   -to	-		n centistokes	1.3148	ı	Acetone	• • ·
<u>Ç</u> •0	;		40 60	0.9713 0.7621	1	Carbon tet. Benzene	ec
A'   25 to		5	80	0.6218	i	Ether	œ
B' 115 °C	1957.11 216.6	5	B <sup>v</sup> 30 to	535,69	4	n-Heptane Ethanol	
A'* 25 to	2.00476	5	] A   90 °C	2.27699	4	Water	"
B'*115 °C	1855.29	5	(B <sup>V</sup> )  to			Water in	<del>                                     </del>
Ac 260 to		5	(A <sup>V</sup> )  °C		ļ	4	
Bc tc Cc	245.9	5	c <sub>p</sub> liq. *K		1		
Cryos. Acconsts. B		1	c <sub>p</sub> vap. *K		l		
te °C F	<del></del>	5	c <sub>v</sub> vap.				
TR = 0.						grams/100 gra	ms solvent
REFEREN	CES: 1-Dow	2-A	PI 3-Lit. 4-	Calc, from de	t, de	ata 5-Calc. by for	rmula
SOURCE:		Do	W				
PURIFICA	TION:	Di	stillation				
LITERATU	IRE REFERE	NCE	S:				
1							

No. 148 NAME Iodobenzene STRUCTURAL FORMULA Molecular C6H5I Mole Molecular Ref. Weight 204,020 % Pur. Formula Ref. Ref Ref. F.P. C F.P. 100% -31.27 32 dt/dP to °C/mm •ĸ g 25°C 14.533 B. P. \*C h ΒP 4 760 mm 188,33 3 ſ١ 0.0372 5 to 100 118.27 4 g' ۰ĸ 30 30 mm 87.46 4 0.7708 4 10 64.0 5 h' ∆Hm cal/g 11.426 3 1 24.9 5 to AHv cal/g Pressure ۰ĸ 25°C 58.09 mm 25°C 1.009 5 o 30 mm te 54.79 1270. 5 BP 46.27 31 Density m' to 1 te (d, e) 44.47 4 g/ml 20°C •ĸ n' 1.8308 31 5 44.38 ۰,  $\mathbf{d_4^t}$ 25 1.8229 AHV/T 18,73 4 30 1.8149 31 Surface tension 85 d 62,18 5 to 1.8624 dynes/cm. 20°C 41.45 200 •<u>c</u> 0.0845 5 ъ 34 -0.00158 ٦ď٠ 40 38.69 35.94 4 59.66 25 to 34 60 Ref. Index e' 85 0.0629 5 20°C  $\mathbf{n}_{D}$ 1.6200 Parachor [P] d g/ml vc ml/g tc °C 0.5814 31 25 20°C 1.6172 5 282.8 1.720 31 30 1,6142 30 282,8 448. 31 40 282.6 "C" 4 0.4393 P<sub>c</sub> mm 33912. 31 Sugd 281.0 5 MR (Obs.) 39.15 4 PV/RT Exp. L.1.%/wt. MR (Calc.) 39.582 25°C 1.0000 (nD-d/2) 0.7046 4 30 mm 1.0000 Dispersion Dielectric 33 20° 4.63 BP 0.9579 5 Flash Point °C te A 85 to 0.9421 6.89506 Fire Point 0.2646 B 1270\_°C 1562,87 M Spec. C 201.0 AHc kcal/m Ultra V. ΔHf A\* 85 to 1.51165 X-Ray Dif. 5 ΔFſ B+ 1230 °C 1464.48 Infrared 620. 1 Viscosity 41. Solubility in -0.14003 centistokes t<sub>x</sub> |230 to t<sub>x</sub> |390 °C Acetone 227. Carbon tet. 90 520 5 Benzene 00 0 to 7.23639 4 Ether B' \_85 °C 1765.99 n-Heptane œ B<sup>V</sup> | C' 219. to Ethanol œ •c Water A'\* 15 to 1.87118 Water in B'\* 85 °C (BV) 1666.99 to Ac | 270 to 7.53557  $(A^{V})_{I}$ 4 •c Bc tc C 2341. cp liq. Cc •ĸ 291. Cryos. A\* ۰ĸ c<sub>p</sub> vap. consts. B° t, •C c, vap. 211.22 4  $T_R = 0.75 T_c$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: 31 PURIFICATION: 31 LITERATURE REFERENCES: 3 Timmermans; 3' Young; 32 JACS 59, 2726 (1937) D. R. Stull; 33 NBS Circ. 514; 34 Thesis, Bruxelles (1937) H. Bodson; 35 Lange

No. 1 Styrene STRUCTURAL FORMULA NAME CH= CH2 Vinylbenzene Molecular C8H8 Mole Ref Molecular Weight 104.144 99.98 % Pur Formula Ref Ref F.P. °C F.P. 100% -30,628 2 dt/dP f to °C/mm 25°C ٠ĸ g 2,7360 5 B. P. °C h ВP 0.0496 760 mm 4 145.2 2 ſ١ t, 0.0360 5 to 100 82.38 4 g' <u>•ĸ</u> 30 54.7 4 30 mm 0.6929 4 10 33.6 5 h' ∆Hm cal/g 1 -1.6 5 300 to -0.0543 m ∆Hv cal/g Pressure l\_6<u>0</u>0 **•**K n 0.0013 25°C 102.40 mm 25°C 6.056 5 a -0.065 4 30 mm 98.70 5 1147. t<sub>e</sub> BP 84.69 5 700 to m' 0.0902 Density t<sub>e</sub> (d, e) 82.31 5 1000 °K n' 0.0388 g/ml 20°C ١ 0.90600 82.17 5 ۰, -0.0632 4 dt4 25 0.90122 2 AHv/T 5 19.72 30 0.89644 4 Surface tension 55 to 160 °C d 107,16 5 0.92511 -0.0395 dynes/cm, 20°C 32.3 1 0.1548 5 4 30 30.98 ăח 5 to 20 105.51 40 29.67 5 e' Ref. Index 55 0.1246 20°C 1.54682 2 [P]  $^{n}D$ Parachor d<sub>c</sub> g/ml 25 1.54395 20°C 274.0 4 vc ml/g 30 1.54093 4 30 363.7 5 tc 40 "C" 0.7896 4 P<sub>c</sub> mm 28912. Sugd. 274. 1 5 5 36.444 MR (Obs.) 2 PV/RT Exp. L.1.%/wt. 4. 31 MR (Calc.) 36.346 25°C 1.0000 19. 31 5 u. (nD-d/2)1.09382 2 30 mm 1.0000 Dispersion 265. 2 Dielectric 2.43 3 BP 0.9603 5 Flash Point C 31 32. A 55 to t t 0.9486 5 6.92409 Fire Point B | 205 °C 1420.0 M. Spec. Yes 1 AHc kcal/m С 206. 4 1018.83 Ultra V. Yes 1 A Hf 35.22 2 A\* 55 to 1.28861 5 X-Ray Dif. ΔFf 51,10 B\*[ 180 °C 1330.7 Infrared 824 1 ĸ Viscosity Solubility in centistokes Acetoné to Carbon tet. •c <u>Ç</u>] Benzene œ 10 to 7.26725 Ether œ \_5<u>5 °C</u> 1604.6 n-Heptane œ B<sup>V</sup> 5 222. to Ethanol 00 •c Water A'\* 15 to 1.63073 5 Water in B'\* 55 °C 1509.4 (B<sup>V</sup>)I to Ac| 205 to 7.33218 5  $(A^{V})$ °C Bc tc C •c 1774.8 c<sub>p</sub> liq. •ĸ Cc' 254. 5 Cryos. A cp vap300°K 0.28182 2 consts. B° 400 0.36795 c, vap. te °C 161.45 5  $T_R = 0.75 T_c$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: Dow, API PURIFICATION: Thermal cracking ethylbenzene and fractionation LITERATURE REFERENCES: 3 NBS Circ. 514; 3' Nat. Fire Prot. Assoc. 325

STRUCTURAL FORMULA a-Methylstyrene NAME (CH3) C - CH2 Isopropenylbenzene Molecular C9H10 Molecular Weight 118,170 Mole Ref. % Pur Formula Ref Ref Ref. F.P. \*C -23.21 2 dt/dP to °C/mm °K g 25°C 6.187 5 B. P. \*C h BP 0.0520 165.38 760 mm 2 5 f 0.0364 to 100 99.59 4 g' 30 70.60 4 30 mm 0.7256 4 10 48.5 h! ΔHm cal/g 5 11.6 1 300 to -0.0166 m ΔHv cal/g Pressure n \_600 °K 0.0012 25°C 96.69 mm 25°C 2,500 5 -0.0651 30 mm 5 91.31 1201. 5 te Ś BP 78.0 0.1037 Density g/ml 20°C 700 to m' t<sub>e</sub> (d, e) 75.49 5 0.0<sub>3</sub>87 -0.0<sub>6</sub>30 11000 °K n' 0.9106 2 75.33 5 4 0 25  $\mathbf{d_4^t}$ 0.9062 ΔHv/Te 5 19.49 30 0.9018 Surface tension 70 0.9282 -0.0<sub>3</sub>88 101.22 5 . dynes/cm. 20°C 33,88 •c 185 0.1404 Ъ 4 30 32.59 31.33 5 ð٠ to 99.64 1 25 40 5 e¹ Ref. Index 0.1181 70 n<sub>D</sub> 1.5386 20°C 2 [P] Parachor g/ml d 1.5358 25 2 a Vc 20°C ml/g 30 1.5321 4 30 •c tc 381.7 5 40 "C" 0.7744 4 P<sub>c</sub> mm Sugd. 313.1 25547. 5 5 40.63 MR (Obs.) 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 40.964 5 25°C 1.0000 (nD-d/2) 1,0833 2 30 mm 1.0000 2 Dispersion 265. Dielectric 2.2 °0 3 BP 0.9569 Flash Point °C 0.9434 5 70 to 6.92366 t<sub>e</sub> Fire Point t<sub>c</sub> В L220 °C 1486.88 M Spec. С 202,4 AHc kcal/m 1162.46 27.00 2 Ultra V ΛHf 2 A\* | 70 to 1.32891 X-Ray Dif. ΔFf 49.84 B\* 195 °C 1395.14 Infrared Viscosity Viscos.., centistokes °C Solubility in Acetone to •c Carbon tet. œ Benzene A' 15 to 7.26679 Ether œ <u> 70 °C</u> 1680.13 B١ n-Heptane œ B<sup>V</sup> | C١ 219.6 to Ethanol œ ٠c Water A'\* 1.67660 20 to B' 70 °C Water in (BV) 1583.9 to Ac | 220 to 7.3284 5  $(A^{V})_{1}$ °C Bc \_\_tc\_ 1847. cp liq. ۰ĸ 250. Cryos. A. c<sub>p</sub> vap.300°K 0.29534 consts. B° 0.37912 te °C c, vap. 184.40  $T_R = 0.75 T_C$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula API SOURCE: PURIFICATION: API LITERATURE REFERENCES: 3 ASTM 109

No. 3  $\beta$ -Methylstyrene STRUCTURAL FORMULA NAME CH= CH-CH3 Propenylbenzene Molecular Mole Ref. Molecular  $C_{Q}H_{10}$ % Pur. Weight 118,170 Formula Ref. Ref. -52, 25 2 F.P. °C F.P. 100% dt/dP f to °C/mm 25°C <u>•K</u> g 7.565 5 B. P. °C h BP 0.0524 760 mm 170. 2 0.0368 5 te f to 104. 100 4 74. g' •<u>к</u> 4 0.7320 4 30 30 mm 10 52. 5 h' AHm cal/g 15. 300 to -0.0254 m AHv cal/g 0.0012 Pressure n 1\_6<u>0</u>0\_•K 25°C 98.54 mm 25°C 2.006 0 -0.0<sub>6</sub>55 4 30 mm 92.52 5 1195. 5 te ΒP 77.93 5 m' 700 to 0.0832 Density te (d, e) 75.30 5 n' 1000 °K 0.0<sub>3</sub>93 -0.0<sub>6</sub>34 g/ml 20°C 0.911 2 5 75.04 ۰' 4  $d_4^t$ 25 0.907 2 AHv/Te 19.25 5 30 0.903 4 Surface tension 75 103.86 5 0.927 -0.0<sub>3</sub>8 to 44 a dynes/cm, 20°C 185 <u>•c</u> 0.1526 5 ь 30 32,77 25 to ٦i 101.58 5 31.62 5 40 Ref. Index e! •c 75 0.1219 5 1.549 2 <sup>n</sup>D 20°C [P] Parachor d g/ml vc ml/g t °C 1.546 25 2 20°C 30 1.544 4 30 <sup>t</sup>c 389.5 5 40 "C" 0.7881 4  $P_c$  mm Sugd. 313.1 5 25871. 5 41.3 2 MR (Obs.) PV/RT Exp. L.1.%/wt. 40.964 MR (Calc.) 5 25°C 1.0000 5 (nD-d/2) 1.094 2 30 mm 1.0000 Dispersion 265. 2 Dielectric 200 2.7 0.9444 3 ВP Flash Point °C te tc 0.9295 A 75 to 6.92339 Fire Point B 1 225 °C 1499.80 M. Spec. AHc kcal/m 201.0 4 1164.46 2 Ultra V. ΔHf 29.00 51.84 A# 75 to 2 1.34680 X-Ray Dif. ΔFf 2 B\*[ 200 °C 1413.57 Infrared ĸ Viscosity Solubility in centistokes Acetone to •c Carbon tet. œ •c ŧΞi Benzene A' | 25 to 7.26651 Ether 00 B١ i\_7<u>5 °C</u> 1694.73 n-Heptane 90 B<sup>V</sup> A Ethanol 218.3 to 00 ٠c AI+ Water 25 to 1.67510 5 Water in B'# 75 °C (B<sup>V</sup>) 1598.7 to Acl 225 to (A<sup>V</sup>)| 7.3273 5 °C Bc tc C 1862.6 c<sub>p</sub> liq. ۰ĸ 250. Cryos. A\* c<sub>p</sub> vap300°K 0.29703 2 consts. B. 400 0.38250 2 c, vap. f .C 5 188.97  $T_R = 0.75 T_c$ grams/100 grams solvent 5-Calc. by formula REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data API SOURCE: API **PURIFICATION:** LITERATURE REFERENCES: 3 NBS Circ. 514

No. 4 STRUCTURAL FORMULA NAME o-Methylstyrene ÇH = CH2 o-Methylvinylbenzene СНЗ Molecular C9H10 Molecular Mole Ref. Weight 118,170 Formula % Pur Ref. Ref. Ref. dt/dP f to F.P. 100% -68,57 3 °C/mm g <u>•K</u> 25°C 8.320 B. P. \*C h ВP 0.05099 760 mm 169.8 3 0.0357 5 f 100 te to 105. 5 g' ۰ĸ 30 76. 5 30 mm 0.7267 4 10 54. 5 h¹ ∆Hm cal/g 5 16. 300 to -0,0166 ΔHv cal/g m Pressure 600 °K 0.0012 n 25°C 99.51 5 mm 25°C 1.806 5 o -0.0651 4 30 mm 93.99 5 1194. 5 te ВP 80, 05 5 700 to 0.1037 m' Density g/ml 20°C te (d, e) 77.52 5 11000 °K 0.0387 'n 4 0.9036 1 77.33 5 ٥' -0.0630 4 0.8990 ď4 25 ΔHv/Te 5 19.86 30 0.8944 4 Surface tension 75 105.25 5 d to 0.9194 -0.0<sub>3</sub>92 4 dynes/cm. 20°C 8 32.85 190 0.1484 102.22 5 <u>.c</u> Ъ 30 31.54 5 ٦,-25 to 40 30,26 5 0.1086 Ref. Index •' 75 5 20°C 1.54654 [P] n<sub>D</sub> Parachor d<sub>c</sub> g/ml 0.3099 5 25 1.54374 20°C c ml/g 3.229 30 1.54094 4 30 384.4 5 t<sub>c</sub> 40 "C" 0.7913 4 Pc 27617. 5 mm Sugd. 313.1 5 MR (Obs.) 41.44 4 PV/RT Exp. L.1.%/wt. MR (Calc.) 40.964 1.0000 5 25°C (nD-d/2) 1.0947 4 30 mm 1.0000 5 265. 2 Dispersion Dielectric BP 0.9442 Flash Point °C 0.9299 t<sub>e</sub> 75 to 7.09235 1582.7 4 Fire Point 5 tç 0.257 B 220 °C M Spec. 5 C 206. AHc kcal/m 1163.76 28.30 2 Ultra V AHf A\* 75 to B\* 200 °C 75 to 1.51271 5 X-Ray Dif. ΔFf 51.14 2 1494.1 Infrared Viscosity Solubility in centistokes Acetone to •c Carbon tet. Benzene Ā 15 to 7.44611 Ether 00 B' ∟75 °C 1788.4 n-Heptane œ C' 224. 5 to Ethanol ÃΥ 90 ·c Water A'\* 20 to B'\* 75 °C 1.84630 5 Water in 1688.2 (BV) 5 to Ac | 220 to 7.5014 5 (A<sup>V</sup>) •c Bc \_tc\_'C 1950. 5 c<sub>p</sub> liq. •ĸ 253. Cryos. A c<sub>p</sub> vap.300°K 0.29534 consts. B° 0.37911 2 400 t° .C c, vap. 188.1 5  $T_R = 0.75 T_c$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: **PURIFICATION:** 3 LITERATURE REFERENCES: 3 J.A.C.S. 75, 1593 (1953) Clements et al.

NAME		m-N	lethy	lstyr	ene			STRUCTURAL FORMULA				
		m-M	lethy	lviny	lbenzene			, ct	=CH2			
Mole % Pur.		Ref.		lecul muli		Molecular Weight 118.17	70	L.	<b>Ј</b> снз			
				Ref.			Ref.			Ref		
F. P. °C					dt/dP			[ f   ]				
F.P. 100	% -	86.34		3	*C/mm		_	g   '	K			
B. P. *C					25°C BP	7.9334 0.05245	5	h	_	L		
760 mm 100		71.6		3 4	t <sub>e</sub>	0.0367	5		.0			
30		76.		4	30 mm	0.7387	5		<u>K</u>			
10 1		53. 15.		5	ΔHm cal/g			h¹ i		1		
Pressure	╅	15.		-	ΔHv cal/g			m   300 n   600	o -0.0166 K 0.0012			
mm 25°C	;	1.92	95	5	25°C	97.68	5	- 1 1_600_1	-0.0651			
te	11	99.	•	5	30 mm BP	92.29 78.45	5			┶		
Density					t .	75.90	5	m' 700				
g/ml 20°	۱ ت	0.91		3	Le (a, e)	75.70	5	ō' .	-0.0630			
d <sub>4</sub> 30		0.90		4	ΔHv/T <sub>e</sub>	19.33	5	Surface to said		+-		
	$\top$	0.92		4	d 75 to	103.17	5	Surface tension dynes/cm. 20°		5		
Ъ		-0.03	92	4	-6 - 190 °C	0.1441	5	₹ 30	32.64	5		
Ref. Inde:					e'   75 °C	0.1067	5	40	31.32	5		
<sup>n</sup> D 20°	C	1.54		3	d <sub>c</sub> g/ml	0.288	5	Parachor [P]	د ا	j		
30	1	1.54		4	v_mi/g	3.466 389.0	5	30	~	i		
"C"	1	0.78	313	5				40	ر دروا د.			
MR (Obs.	7	40.96		4	P <sub>c</sub> mm	25910.	5		d. 313.1	5		
MR (Calc	.)	40.96		5	PV/RT 25°C	1.0000	5	Exp. L.1.%/w	*·			
(nD-d/2)	-	1.08	882	4	30 mm	1.0000	5	Dispersion	265.	2		
Dielectric	_			ļ	BP	0.9441	5	Flash Point *C	;			
A 75 to B 225 °C		6.99 53.4	468	4	t e t c	0.9293	5	Fire Point				
c Land		06.		5	AHc kcal/m	1163.06	2	M. Spec.	1			
A# 75 to	,	1,41	260	5	ΔHf	27.60	2	Ultra V. X-Ray Dif.				
B* 200 *	<u>C   14</u>	64.1		5	ΔFf	50.02	2	Infrared				
K — —					Viscosity centistokes			Solubility in	+			
t <sub>k</sub> te					η •c			Acetone Carbon tet.	<b>80</b>			
ا تح							1	Benzene	<b>80</b>			
A'   15 to		7.34 55.3	1229	5				Ether n-Heptane	<b>80</b>			
C' :		24.		5	B <sub>v</sub> to			Ethanol	<b>80</b>			
A'+ 20 to	0	1.74	274	5	_ A'	_	1	Water				
B'+ 75 °	C 16	55.1		5	(B <sup>V</sup> )  to			Water in		+-		
Acl 225 to	٠   ١٠	7.40	)53	5	(A <sup>V</sup> )  °C		1	1				
Bc tc.	- 19	26. 55.		5	c <sub>p</sub> liq. •K							
Cryos. A		<u> </u>		Ė	c vap.300 K	0.29534	2	1		1		
consts. B	•				400	0.37911	2					
$t_e$ °C $TR = 0.$		90.7		5	c <sub>v</sub> vap.	1	<u> </u>	* * * * * * * * * * * * * * * * * * *		<u> </u>		
			2000	2 A	DI 3 1 i+ 4	Cala from de		grams/100 g ata 5-Calc. by		nt		
	, CEO	. 1-1	-U#	3	J-1111. 4-	Care, from de	u	see 3-care, by	· · · · · · · · · · · · · · · · · · ·			
SOURCE:	TIO			3								
PURIFICA			FPF		S. 2 7 4 C 2	75 1503 414	25.23	Clamana 1				
LITERAT	JRE	re!	in E	14CE	J. A.C.S	5. <u>75</u> , 1593 (19	755) (	Clements et al.				

No. 6 STRUCTURAL FORMULA NAME p-Methylstyrene CH=CH2 p-Methylvinylbenzene Molecular C9H10 Molecular Mole Weight 118,170 Formula % Pur Ref Ref. dt/dP f to F.P. 100% °C/mm -34.15 3 g <u>°K</u> 25°C 8.407 B. P. \*C h ВP 0.05247 760 mm 172.78 3 0.0358 5 f t<sub>e</sub> 100 106.1 to 5 g' •ĸ 30 76.6 5 30 mm 5 0.7400 54.1 10 5 h' ΔHm cal/g 16. -0,0166 300 to ΔHv cal/g m 1 600 °K Pressure 0.0012 n 25°C 98.20 mm 25°C 1.8112 -0.0651 4 o 30 mm 92.69 1238. t<sub>e</sub> BP 5 80.73 700 to 0.1037 m' Density g/ml 20°C te (d, e) 5 78.21 n' 11000 °K 0.0387 0.9106 78.18 -0.0630 0.9060 ٥' 25 dt4 3 AHV/T 19.81 5 30 0.9014 4 Surface tension 75 102.23 5 to 0.9290 -0.0<sub>3</sub>92 . dynes/cm. 20°C 33.88 •c 5 ъ 195 0.1244 30 32.53 31.22 to •℃ 25 100.87 5 1 40 5 e¹ Ref. Index 0.1067 5 20°C [P] n<sub>D</sub> 1.54496 2 Parachor ďc g/ml 0.294 5 25 20°C 1.54202 3 v c t c ml/g 3.398 30 1.53914 4 30 ·c 392.5 5 40 "C" 0.7831 4 Sugd. 313.1 P<sub>c</sub> mm 5 26569. 5 MR (Obs.) 41.05 PV/RT Exp. L. 1. %/wt. 40.964 1.0897 MR (Calc.) 1.0000 25°C 5 (nD-d/2) u. 4 30 mm 1.0000 5 Dispersion 265. 2 Dielectric BP 0.9667 5 Flash Point °C t<sub>e</sub> 0.9538 A 75 to 7.00589 Fire Point 0.257 5 1562.5 t<sub>c</sub> B [225 °C M Spec. C 206. 5 AHc kcal/m 1162.86 2 Ultra V ΔHf 27.40 2 A\* | 75 to 1.38211 5 X-Ray Dif. ΔFf 50.24 2 B\* 205 °C 1461.5 Infrared ĸ Viscosity Solubility in centistokes Acetone to t<sub>x</sub> | Carbon tet. œ •c Benzene 10 to 7.35420 Ether œ \_7<u>5</u> °C 1765.6 B١ n-Heptane œ ВŸ 5 C' 223.8 Ethanol 00 ĀV •c Water AI\* 15 1,75376 5 to Water in B'# 75 °C (BV) 1665.2 5 to Ac | 225 to 7,4170 5 (A<sup>V</sup>)1 °C Bc \_\_tc\_\* •c 1938.0 liq. ۰ĸ c<sub>D</sub> Cc 255. Cryos. A. c<sub>p</sub> vap300°K 0.29534 2 consts. B° 0.37911 c, vap. te °C 5 193.29  $T_{\mathbf{R}} = 0.75 \, T_{\mathbf{c}}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det. data 5-Calc, by formula SOURCE: PURIFICATION: 3 LITERATURE REFERENCES: 3 J.A.C.S. 75, 1593 (1953) Clements et al.

<del></del>							No. /	
NAME	m-and p	-Viny	yltoluene (Comn	nercial Produ	ct)	STRUCTURAL	FORMUL	A
	m- and n	- Met	hylstyrene		$\neg$	CH=CH2	CH=CH	2
	mi- and p	- 1416 6	myrstyreac					
Mole	Ref. Mo	lacul:		Molecular		<b>√</b> Јсн <sub>3</sub>	ل	
% Pur. 99.	75   Ker. Mo.	mula	T C <sub>9</sub> H <sub>10</sub>	Veight 118.13	70	<b>*</b>	СНЗ	
-/	1 1 2	Ref	I		Ref.			Ref.
		Ve1	<del></del>		Ker.			
F.P. °C F.P. 100%	. +	$\vdash$	dt/dP *C/mm			f to	į	
	<u>'</u>	-	25°C	8.955	5	g ' <u>°K</u>	1	
B. P. °C 760 mm	167.7	4	BP	0.0491	5	h		
100	104.7	4	t <sub>e</sub>	0.0340	5	f' to		
30	76.5	4	30 mm	0.7118	4	g' <u>*K</u>		
10 1	54.7 18.	5	∆Hm cal/g			h¹ [		
	10.	-	ΔHv cal/g			m   300 to	-0.0166	4
Pressure mm 25°C	1,6396	5	25°C	101.84	5	n   600 •K	0.0012	
t <sub>e</sub>	1206.	5	30 mm	96.28	5		-0.0 <sub>6</sub> 51	4
Density	+	-	BP	83.47	5	m¹   700 to	0.1037	4
g/ml 20°C	0.89768	1	t <sub>e</sub> (d, e)	81.01 80.93	5	n'   1000 <u>*</u> K	0.0387	4
dt 25	0.89353	1	ΔHv/T <sub>e</sub>	20.86	5	0'	-0.0630	4
4 30	0.88938	4				Surface tension		
a	0.91428	4	d 75 to	107.02 0.1405	5	dynes/cm, 20°C	31.53	1
ь	-0.0383	4	-a	104.55	5	<b>8</b> 30	30.44	1
Ref. Index			e' 75 °C	0.1080	5	40	29.38	1
<sup>n</sup> D 20°C		1 1	d <sub>c</sub> g/ml	0,30	5	Parachor [P]	211 0	4
30	1.53949	i	v <sub>c</sub> ml/g	3.33	5	20°C 30	311.9 312.1	4
"C"	0.7905	4	tc *C	382.	5	40	312.3	4
		-	P <sub>c</sub> mm	31557.	5	Sugd.	313.1	5
MR (Obs.) MR (Calc.		4 5	PV/RT			Exp. L.1.%/wt.	* 1.9vol.	1
(nD-d/2)	1.09329	4	25°C	1.0000	5	u.	ļ	
Dielectric	2.56	1	30 mm BP	1.0000 0.9570	5	Dispersion	ļ.,	L.
A 75 to	<del></del>	4	t <sub>e</sub>	0.9441	5	Flash Point *C Fire Point	60.	1
B   220 °C		4	tc				<del>- 60.</del>	1
c	207.	5	AHc kcal/m	1151.18	1	M. Spec. Ultra V.	1	1
A* 75 to	1,6413	5	ΔHf ΔFf	15.72	1	X-Ray Dif.	1	
B* 195 °C	1539.3	5			<del>├</del>	Infrared		
K			Viscosity centistokes		1	Solubility in +		
, _ to	-		7 20 °C	0.9277	1	Acetone	<b>∞</b> 0	
<b>i</b> \$ •c			40	0.7263	i	Carbon tet. Benzene	<b>80</b>	İ
A'   10 to	7,6053	5	60	0.5922	1	Ether	e0 e0	}
B' 75 °C		5	80	0,4970	1	n-Heptane	œ	İ
C'	225.	5	B <sup>V</sup> 30 to	455.60	4	Ethanol	œ	١.
A'* 15 to		5	LA_ 170 C	Z. 40647	4	Water Water in	0.0089	1 1
B'* 75 °C		5	(B <sup>V</sup> )  to		1		10.027	┿
Ac 220 to	7.6513	5	(A <sup>V</sup> )  °C		<u> </u>	1		1
Bc tc C	2001.0 252.3	5	c liq. 20°C	0.410	1	1		1
<del></del>		+		0.428	4	1		1
Cryos, A' consts. B'			c vap.300K	0.2953 0.3791	2 2	1	1	1
t <sub>e</sub> °C	185, 75	5	c vap.	1 3.3.7	1	1		1
		1 2	11	1	т.	+ (100	<u> </u>	<del>!</del> —
TR = 0.7		2 ^		Cala ( )		grams/100 gra		nt
	CES: 1-Dow			Caic. from de	et. de	ata 5-Calc, by for	rinuia	
SOURCE:		Dow				<del> </del>		
PURIFICA			illation					
LITERATU	JRE REFERE	NCE	S:					
1								
1								

No. 8 STRUCTURAL FORMULA NAME m-Ethylstyrene CH = CH2 m-Ethylvinylbenzene Molecular C<sub>10</sub>H<sub>12</sub> Mole Ref. Molecular Weight 132.196 % Pur Formula Ref. Ref. Ref F.P. C -101.3 1 dt/dP f to °C/mm g °K 25°C 20.46 5 B. P. \*C h ВP 0.0533 760 mm 190.12 0.0357 5 ſ 122.3 4 to 100 g' •ĸ 30 92.18 4 30 mm 0.7552 4 10 69.1 5 h' AHm cal/g 30,5 5 to ΔHv cal/g Pressure •ĸ n 25°C 96.42 0.6776 mm 25°C 5 88.57 75.54 o 30 mm 5 1266. 5 te BP 5 to m Density g/ml 20°C 72.81 5 te te (d, e) •ĸ n' 0.89449 1 72.63 5 0.89045 ď  $d_4^t$ 25 ΔHv/Te 5 19.84 30 0.88641 4 Surface tension 90 to 100.84 5 0.91065 4 dynes/cm. 20°C 32,22 1 210 •c 0.1331 5 ь -0.0381 4 30 31.07 5 đ٠ to 99.34 5 40 29.95 5 e' Ref. Index 90 0.1168 5 n<sub>D</sub> 20°C 1.53512 [P] dc g/ml vc ml/g tc °C Parachor 0.286 5 25 1.53250 20°C 3.50 30 1.52992 4 30 403.2 5 40 ייכיי 0.7837 4 24200. P<sub>c</sub> mm 5 5 Sugd. 352.1 MR (Obs.) 46.02 **4** 5 PV/RT Exp. L.1. %/wt. 45.582 MR (Calc.) 1.0000 5 25°C 1.08788 (nD-d/2) 4 1.0000 30 mm 5 Dispersion Dielectric ВP 0.9535 Flash Point °C 0.9381 A 90 to 7.03928 te Fire Point tc 0.26 1614.0 B 235 °C M Spec. C 198. 4 AHc kcal/m Ultra V ΔHf A\* 90 to 1.47626 5 X-Ray Dif. ΔFf B+ 220 °C 1519.2 Infrared ĸ Viscosity Solubility in centistokes c Acetone to •c Carbon tet. œ •c Benzene A' | 15 to 7.38970 Ether œ 1823.8 B' \_ 90 °C n-Heptane 00  $\mathbf{B}^{\overline{\mathbf{v}}}$ C' 216. 5 Ethanol to 00 A I •c Water A'+ 1.8364 20 to 5 Water in (BV) B'# 90 °C 1726.0 5 to Ac | 235 to (AV) 7.4392 5 °C Bc tc C 1978.1 cp liq. ۰ĸ Сc 5 244. Cryos. A\* •ĸ cp vap. consts. B° te °C c, vap. 211.99 5  $T_{R} = 0.75 T_{c}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det. data 5-Calc, by formula SOURCE: Dow **PURIFICATION:** Distillation LITERATURE REFERENCES:

No. 9 p-Ethylstyrene STRUCTURAL FORMULA NAME p-Ethylvinylbenzene Ref. Molecular Mole Molecular C10H12 % Pur. 99. 70 Weight 132.196 C2 H5 Formula Ref. Ref. F. P. \*C -49.73 1 dt/dP f to F.P. 100% °C/mm 25°C ٠ĸ g 18.58 B. P. °C h BP 0.0556 760 mm 192.78 t<sub>e</sub> 0.0371 5 f to 122.56 4 100 g' 4 •<u>к</u> 91.64 30 30 mm 0.7731 4 10 68.11 5 h١ ∆Hm cal/g 28,85 5 to AHv cal/g Pressure n •K 25°C 93.87 mm 25°C 0.7665 o 30 mm 86,27 1275. te ВP 73.33 5 m to Density 70.56 5 t<sub>e</sub> (d, e) n¹ ٠ĸ g/ml 20°C 0.89249 70.37 5 ۰' 0.88845  $d_4^t$ 25 AHv/T 19.07 5 0.88441 30 4 Surface tension 90 to 98,00 5 0.90865 -0.0<sub>3</sub>81 a dynes/cm, 20°C •c 0.1280 215 4 5 ь 30 30,79 ď٠ 25 to 96.72 5 40 29.68 Ref. Index e١ 90 •c 0.1140 5 n<sub>D</sub> 20°C 1.53763 [P] Parachor d<sub>c</sub> g/ml 0,290 25 1.53484 20°C vc ml/g t °C 5 3.45 30 1.53231 4 30 t<sub>c</sub> 408.0 5 40 "C" 0.7888 4  $P_c$  mm 5 Sugd. 5 21761. 352.1 46,032 MR (Obs.) PV/RT Exp. L.1.%/wt. MR (Calc.) 45.582 25°C 1.0000 5 (nD-d/2)1.09138 5 30 mm 1.0000 Dispersion Dielectric 0.9531 3.350 BP 1 Flash Point C 65. 5 0.9370 te tc A 90 to 6.90071 Fire Point 0.25 5 B 1240 °C 1570.9 M. Spec. С AHc kcal/m 198. 4 Ultra V. ΔHf A# 90 to 1.33502 5 X-Ray Dif. ΔFf B\* 225 °C 1475.3 Infrared 562. 1 ĸ Viscosity Solubility in c centistokes Acetone • to Carbon tet. œ ليكا •c Benzene œ A' 15 to 7.24240 Ether 00 B١ 9<u>0 °C</u> 1775.1 n-Heptane 00 B<sub>v</sub> | 216. 5 to Ethanol œ •c A'\* Water 20 to 1.68950 5 Water in B'# 90 °C (B<sup>V</sup>)I 1677.4 5 to Ac| 240 to 7.3025 5  $(A^{V})$ °C Bc tc T •c 1940.5 c<sub>p</sub> liq. ۰ĸ Cc 247. 5 Cryos, A° ۰ĸ c<sub>p</sub> vap. c, vap. te °C 215.92 5  $T_R = 0.75 T_C$ grams/100 grams solvent 5-Calc. by formula REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det. data Dow SOURCE: Distillation **PURIFICATION:** LITERATURE REFERENCES:

74775	p-Isopr	00110	turana			No. 10 STRUCTURAL FORMULA			
NAME	<del></del>		inylbenzene				= CH2	`	
<del></del>	p-1sopr	оругч	Invibenzene						
Mole % Pur. 99	Ref. Mo	lecul: rmul		Molecular Weight 146.2	,,	CH (	(CH3)2	İ	
- N Fui. //	1 . 1 . 1	Ref		weight 110.2	Ref			Ref.	
F. P. *C	-44.66	1	dt/dP			f   to			
F.P. 100	6		*C/mm 25*C	42.27	5	g <u>  </u>		i i	
B. P. °C 760 mm	204.15	4	BP	0.0541	4	f' to		$\vdash$	
100 30	135.20 104.48	4 4	t <sub>e</sub> 30 mm	0.0354 0.7713	5	g' to*K			
10 1	80.9 41.4	5	ΔHm cal/g			h'			
Pressure	+ ****	<u> </u>	AHv cal/g		_	m to			
mm 25°C	0.3081 1300.	5	25°C 30 mm	92.77 83.78	5	"			
Density	1300.	-	BP t	71.19 68.42	5	m'   to			
g/ml 20°0		1	te (d, e)	68.24	5	n'   ' *K			
d <sub>4</sub> 25	0.88101 0.87705	1 4	ΔHv/T <sub>e</sub>	19.98	5	Surface tension		$\vdash$	
a b	0.90081 -0.0 <sub>3</sub> 79	4	d   105 to e   230 °C	96.99 0.1264	5	dynes/cm. 20°C	31.39 30.28	5	
Ref. Inde		•	d'   25 to e'   105 °C	95.60	5	30 40	29,20	5	
n <sub>D</sub> 20°	1.52891 1.52650	1 1	d g/ml v ml/g	0.288	5	Parachor [P] 20°C			
30	1.52388	4	tc *C	3.48 409.2	5	30			
"C"	0.7835	4	P <sub>c</sub> mm	21962.	5	40 Sugd.	391.1	5	
MR (Obs. MR (Calc		5	PV/RT		1	Exp. L.1.%/wt.		П	
(nD-d/2)	1.08642	4	25°C 30 mm	1.0000	5	u. Dispersion			
A 105 t		4	BP t <sub>e</sub>	0.9499 0.9333	5	Flash Point °C			
B [245]	C 1683.5	4	t <sub>c</sub>			Fire Point M Spec.		$\vdash$	
A* 105 t	195.0	5	ΔHc kcal/m ΔHf			Ultra V.	ļ		
B* 240 *		5	ΔFf			X-Ray Dif. Infrared			
c	_		Viscosity centistokes			Solubility in + Acetone	<b>o</b> c		
	C		η •c			Carbon tet.	oc		
A'   20 t		5				Benzene Ether	90 90		
B' (105	C 1902.3 213.9	5	B <sup>V</sup>   to		t	n-Heptane Ethanol	80 80		
A1# 25 t	_	5	A <sup>V</sup> I — °C			Water Water in			
B'* 105 *		5	(B <sup>V</sup> ) to						
	C 2088.8	5	c <sub>p</sub> liq. •K		-	1			
Cryos. A		13	c <sub>p</sub> vap. *K						
consts. B	+	Ļ	c, vap.						
$t_e$ °C $T_R = 0$ .	227.52	5	, , , , , , , , , , , , , , , , , , ,		L	+ (100	l	Ц_	
	CES: 1-Dow	2-A1	PI 3-Lit. 4-0	Calc. from de	t. da	grams/100 grants		t	
SOURCE:		Do							
PURIFICA			stillation						
LITERAT	URE REFERE	NCE	S:						
L									

NAME		p-Isc	prop	yl-a	-methylstyrene			STRUCTURAL CH3 -C=C	No. 11 FORMUL	
1								CH3 -C=C	<sup>-2</sup>	
Mole % Pur. 99	. 27	Ref.	Mol	ecul	ar C <sub>12</sub> H <sub>16</sub>	Molecular Weight 160.2	48	сн3-Сн-0	:H2	
7.11.	_	لبنا		Ref		T	Ref.		3	Ref.
F.P. °C F.P. 1009		-30.6	3	1	dt/dP °C/mm			f to		
B. P. *C	+				25°C BP	110.78 0.0544	5	g ' <u>*K</u> h		
760 mm 100		220.8. 151.1		4 4	te	0.0346	5	f' to		
30		119.8		4	30 mm	0.7873	4	g' <u>*K</u>		
10		95.8 55.1		5	ΔHm cal/g			h'		╁┈┤
Pressure	1			П	ΔHv cal/g	01.20	5	m to		
mm 25°C	,	0.1	089	5	25°C 30 mm	91.38 81.11	5	•		
t <sub>e</sub>	+,	345.		5	BP	69.10	5	m' to		$\vdash$
Density g/ml 20°0	-	0.8	9363	1	t <sub>e</sub> (d, e)	66.29 66.12	5	n'  •K_		1
dt 25		0.8	8974	1	AHv/T	20,46	5	0'		
	+		8585	4	d 120 to	95, 37	5	Surface tension		
b		-0.0	0919 378	4 4	_e _  245 °C	0.1190	5	dynes/cm. 20°C	32.85 31.72	5
Ref. Inde			<b></b>		d' 25 to e' 120 °C	94. 09 0. 1082	5	40	30.62	5
n <sub>D</sub> 20°0			2381	1	d <sub>c</sub> g/ml			Parachor [P]		
25			2155 1887	1 4	V mi/g			20°C 30		
"C"	+	0.7		4	1 _	422.3	5	40		
MR (Obs.	,+	54.8		5	P <sub>c</sub> mm	21589.	5	Sugd.	429.3	5
MR (Calc.		54.8	18	5	PV/RT 25°C	1,0000	5	Exp. L.1.%/wt. u.		
(nD-d/2)	$\bot$	1.0	7700	5	30 mm	1.0000	5	Dispersion		
Dielectric	_			<u> </u>	BP	0.9489 0.9315	5	Flash Point C		
A 120 to B 260 °C		7.2 1799.7 19 <b>3</b> .0	2972	4 4	te t	0.75.5	<u> </u>	Fire Point M. Spec.		+
A* 120 to	+		3186	5	ΔHc kcal/m ΔHf			Ultra V.	1	
B*  255 °C		1701.7		5	ΔFf	<u> </u>		X-Ray Dif. Infrared		
к	_				Viscosity			Solubility in +		+-
i <sub>k</sub> i	-				centistokes り *C			Acetone	•o	}
\$ °	-			1	•			Carbon tet. Benzene	80 80	
A'   20 to			9213			İ		Ether	œ	į
B' 1 120 °	<u>- </u> '	203 <b>3</b> .6 212.7		5	B <sub>v</sub> to			n-Heptane Ethanol	80 80	
A1# 25 to	, †	2.1	0754	5	A		1	Water	~	1
B'* 120 *	_	1933.8		5	(B <sup>V</sup> )  to		1	Water in		+-
Acl 260 to			033	5	(A <sup>V</sup> )  °C		1	1		
Bc tc	<u>- </u> '	2256.6 247.5		5	c <sub>p</sub> liq. °K					
Cryos, A					c <sub>p</sub> vap. °K					
te °C	十	245.8	5	5	c <sub>v</sub> vap.					
$T_R = 0.$		c						grams/100 gra		nt
		5: 1-I	Jow _			Calc. from de	et. de	ata 5-Cale by for	mula	
SOURCE:				Dow						
PURIFICA					illation					
LITERAT	URE	RFF	ERE	NCE	5:					
ŀ										
1										

T	- Chi				No. 12					
NAME		orostyr		$\dashv$	STRUCTURAL FORMULA  QH=CH2					
	0-CFI	oroviny	lbensene			Gin 2				
Mole % Pur. 100	Ref. N	Molecul Formul		Molecular Weight 138.5	93	$\overline{}$				
		Ref.			Ref			Ref.		
F.P. °C	-63.15	1	dt/dP			f to		1 1		
B, P. *C	<del>'</del>		*C/mm 25*C	15.145	5	8  K		1		
760 mm	188.66	4	BP t	0.0554 0.0373	5	r' to		+		
100 30	118.68 87.95	4	30 mm	0.7681	4	g'   'K_				
10	64.6 25.6	5	ΔHm cal/g			h'				
Pressure	1	一	ΔHv cal/g			m to				
mm 25°C	0.956 1265.	6 5	25°C 30 mm	88.01 81.16	5					
Density	1205.	+-	BP	69.0 66.45	5	m'   to				
g/ml 20°C			t (d, e)	66, 25	5	n'   *K-				
d <sub>4</sub> 25 30	1.095 1.090		AHV/T	19.00	5	<u> </u>		$\vdash$		
•	1,118	77 4	d   90 to	91.78 0.1207	5	Surface tension dynes/cm. 20°C	37.27	5		
Ref. Index	-0.039	4 4	13-1 75-16-	90.73	5	30 40	36.01 34.79	5		
B <sub>D</sub> 20°C	1.564		d <sub>c</sub> g/ml	0,1088	5	Parachor [P]		╅		
30	1.562		l v ml/∉	2,72	5	20°C 30				
"C"	0,670		1c 1C	423.6	5	40		5		
MR (Obs.)			P <sub>c</sub> mm	26089.	-	Sugd. Exp. L.1.%/wt.	311.3	╀╸┤		
MR (Calc. (nD-d/2)	) 41.213 1.014		25°C	1.0000	5	u.				
Dielectric	1		30 mm BP	1.0000 0.9544	5	Dispersion Flash Point *C		$\vdash$		
A 90 to			<b>:•</b>	0.9385 0.247	5	Fire Point				
B 1250 °C	1541.1 198.	4	t <sub>c</sub> ΔHc kcal/m	0,241	Ť	M Spec.				
A*   90 to			ΔHÍ ΔFÍ			Ultra V. X-Ray Dif.	Yes			
B* L220 °C	1446.1	5	Viscosity		-	Infrared		1		
t_   to	_		centistokes			Solubility in + Acetone				
t <sub>k</sub>   to		j	7 ·c			Carbon tet. Bensene	ec ec			
A'   15 to						Ether	<b>∞</b>			
B' _90 °C	216.	5 5	B <sup>V</sup> l to			n-Heptane Ethanol	ec ec			
A'* 20 to B'* 90 °C			A <sup>V</sup> C			Water Water in				
Ac   250 to	<b>_</b>	2 5	(B <sup>V</sup> )  to							
Bc t *C	1925.6	5	c <sub>p</sub> liq. •K	<b> </b>	$\vdash$					
Cryos. A	251.	5	c <sub>p</sub> vap. *K							
consts. B	ļ		1 -				İ			
t <sub>e</sub> °C	211.41	5	c <sub>v</sub> vap.	l	<u> </u>	L <u>.</u>	<u> </u>			
T <sub>R</sub> = 0.7		. 2 4 1	21 2 14 4 5	Pala francis		grams/100 grants ta 5-Calc. by for	ns solven	ıt		
SOURCE:	JEW: 1-DOW	Do		aic. Irom de	. da	ta 5-Calc. by for	mula			
PURIFICA:	TION:		tillation							
	RE REFER									
1										
1										

	- Chlor			1	No. 13						
NAME	p-Chlore				STRUCTURAL FORMULA						
ļL	p-Chlor	oviny	lbenzene								
Mole % Pur. 99.	Ref. Mo	lecul rmuli	Molecular Weight 138.593			$\searrow_{\epsilon_1}$					
	_	Ref.			Ref.			Ref.			
F. P. °C	-15.90	1	dt/dP			f to					
F.P. 100%	<u> </u>	<u> </u>	*C/mm 25*C	16.580	5	g ' <u>*K</u>	1				
B. P. *C 760 mm	192.00	4	BP	0.0563	4	h		_			
100	121.05	4	t <sub>e</sub>	0.0376	5	f' to					
30 10	89.96 66.3	4 5	30 mm	0.7770	4	h'					
1	27.0	5	ΔHm cal/g ΔHv cal/g	<del> </del>	┼	m to					
Pressure mm 25°C	0, 8725	5	25°C	88.14	5	"					
t <sub>e</sub>	1279.	5	30 mm BP	81.13 69.10	5		L	L			
Density			l t.	66.53	5	m' to					
g/ml 20°C	1.08682	1 1	te (d, e)	66.32	5	" \	1				
d <sub>4</sub> 25 30	1.07746	4	ΔHv/T <sub>e</sub>	18.86	5	Surface tension	<b> </b>				
	1.10554	4	d 90 to e 215 °C	91.73	5	dynes/cm. 20°C	35,51	5			
b Def Jadan	-0.0394	4	d' 25 to	90.84	5	30 40	34.30 33.13	5			
Ref. Index	1.56601	1	e'   90 °C	0.1079	5	Parachor [P]					
25	1.56343	1 4	dcg/ml vcml/g tc°C	0.353 2.83	5	20°C 30					
"C"	0.6797	4	_	427.4	5	40					
MR (Obs.)	<del></del>	4	P <sub>c</sub> mm	25202.	5	Sugd.	311.3	5			
MR (Calc.	41.213	5	PV/RT 25°C	1.0000	5	Exp. L.1.%/wt.					
(nD-d/2) Dielectric	1.01487	4	30 mm BP	1.0000 0.9560	5	Dispersion					
A 90 to	6.84248	4	l t	0.9403	5	Flash Point *C Fire Point					
B   250 °C	1545.00	4	, c	0.245	5	M. Spec.	ļ	├			
C	198.	4	ΔHc kcal/m ΔHf			Ultra V.	Yes	ŀ			
A*  90 to B*  225 °C	1. 29243 1448, 02	5	ΔFf			X-Ray Dif. Infrared					
к	-		Viscosity			Solubility in +	<del> </del> -	<del>                                     </del>			
t <sub>k</sub> to	-		centistokes り *C		ł	Acetone	<b>so</b>	1			
¢x   °C			'		}	Carbon tet. Benzene	90 90				
A'   25 to B'   90 °C	7.18050 1745.8	5			<u> </u>	Ether n-Heptane	<b>00</b>				
c, '_'=	216.	5	B <sup>V</sup> to		1	Ethanol	ec ec				
A1+ 25 to	1.64955	5	A <sup>V</sup> - C		1	Water Water in					
B'* 90 °C	<del></del>	5	(B <sup>V</sup> )  to		1		Ì	_			
Ac 250 to Bc t <sub>c</sub> °C	7.24901 1932.8	5	(A <sup>V</sup> )  °C c liq. °K	<del> </del>	+	1					
Ce	251.	5	P								
Cryos. A° consts. B°			c <sub>p</sub> vap. *K								
t <sub>e</sub> °C	215,58	5	c <sub>v</sub> vap.		$\perp$	L	<u></u>	<u></u>			
$T_{\mathbf{R}} = 0.7$						grams/100 gra		it			
	CES: 1-Dow			Calc. from de	et. da	ita 5-Calc. by for	rmula				
SOURCE:		Do	w stillation								
PURIFICAT											
LITERATU	RE REFERE	NCE	<b>&gt;</b> :								
1											
1											

No. 14 NAME o-Bromostyrene STRUCTURAL FORMULA ⊊н=сн2 o-Bromovinylbenzene Br Molecular CaH7Br Molecular Ref. Mole % Pur.99.87 Weight 183.052 Formula Ref. Ref. Ref. F.P. °C F.P. 100% -52.75 1 dt/dP f \*C/mm g °K. 25°C 38.989 B, P. \*C h BP 5 0.0574 209.80 760 mm f 0.0374 5 100 to 137.19 <u>•</u>K g' 30 4 30 mm 105.22 0.7999 4 10 80.9 5 h! AHm cal/g 40.2 5 to ΔHv cal/g Pressure n •ĸ 25°C 71.78 mm 25°C 0.3449 5 o 30 mm 64.78 5 t<sub>e</sub> 1319. 5 BP 54.93 5 to Density g/ml 20°C m' t<sub>e</sub> (d, e) 52.70 5 •ĸ n' 1.41601 52.52 5 0'  $\mathbf{d_{4}^{t}}$ 25 1.41024 ΔHv/Te 18.97 5 30 1.40447 Surface tension 1 105 74.69 5 1.43909 dynes/cm. 20°C 39.95 1 230 1 25 e <u>•</u>c 0.0942 5 Ъ -0.00115 30 38.66 37.41 5 ď۰ to 73.96 40 5 e' Ref. Index 105 0.0872 n<sub>D</sub> 20°C 1.59268 ı d g/ml vc ml/g tc °C [P] Parachor 0.459 5 25 1.59014 20°C 2,18 30 1,58755 4 30 5 453,0 40 "C" 0.5446 4 P<sub>c</sub> mm 5 26451. 325.0 5 MR (Obs.) 43.784 PV/RT Exp. L. 1. %/wt. MR (Calc.) 44.111 1.0000 25°C 5 (nD-d/2) 0.88468 5 30 mm 1.0000 5 Dispersion Dielectric BP 0.9502 Flash Point °C 0.9322 5 A 105 to t<sub>e</sub> 6.91038 Fire Point t<sub>c</sub> 0 25 1631.2 B 270 °C M Spec. C 195. 4 AHc kcal/m Ultra V ΔHf A\* | 105 to 1.47612 X-Ray Dif. ΔFf B\* 245 °C 1533.9 Infrared Viscosity Viscos.., centistokes °C Solubility in c Acetone to ·c Carbon tet. œ Benzene œ A' | 20 to 7.25268 Ether œ B! 1105 °C 1843.2 n-Heptane œ  $\mathbf{B}^{\widehat{\mathbf{v}}}$ c' 214. to Ethanol 00 A<sup>V</sup> A'\* 25 to B'\*105 °C °C Water 1.83421 (BV) Water in 5 1744.9 to Ac |270 to 7.3159 5 °C Bc \_tc\_ 2031.5 •c 5 cp liq. °K 249. Cryos. Aº cp vap. ۰ĸ consts. B° te °C c, vap. 235.38 5  $T_R = 0.75 T_C$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: Dow PURIFICATION: Distillation LITERATURE REFERENCES:

NAME		p-Br	omo	styre	ne		STRUCTURAL FORMULA						
				-	benzene	STRUCTURAL FORMULA							
<del></del>	T							- [					
Mole % Pur. 99	. 70	Ref.	Mol	lecula mula	ecular C <sub>8</sub> H <sub>7</sub> Br Molecular Weight 183.052			Br					
				Ref.		T	Ref.	<del></del>		Ref.			
F. P. *C		7.67	-	1	dt/dP			f to					
F.P. 1009					°C/mm		ļ	g  •K					
B.P. °C					25°C BP	50.385 0.0563	5	h					
760 mm		1.98 0.50		4	t <sub>e</sub>	0.0364	5	f' to					
30	10	8.82		4	30 mm	0.7942	4	g' '° <u>K</u>					
10		4.6		5	ΔHm cal/g		<u> </u>	h'		$\vdash$			
Pressure					ΔHv cal/g		_	m to					
mm 25°C		0.25	93	5	25°C 30 mm	73.89 67.34	5	0					
t <sub>e</sub>	132	4.		5	BP	56.55	5	m' to		+			
Density g/ml 20°0		1.39	838	1	te te (d, e)	54.30 53.91	5	n'   K					
at 25		1.39	263	1	AHv/Te	19.47	5	, T					
	+-	1.38		4	d 110 to	78,72	5	Surface tension	20.00	_			
a b	١.	1.42		4 4	e   235 °C	0.1046	5	dynes/cm. 20°C	38.00 36.76	5			
Ref. Inde:	-				d'   25 to e'   110 °C	75.85 0.0782	5	40	35,56	5			
n <sub>D</sub> 20°0		1.59		1	d <sub>c</sub> g/ml	0.45	5	Parachor [P]					
30		1.59		1 4	v mi/g	2, 22	5	20°C					
"C"		0.55		4		453.4	5	40		_			
MR (Obs.	) 4	4.46		4	P <sub>c</sub> mm	25639.	5	Sugd.	325.0	5			
MR (Calc		4.11	1	5	25°C	1,0000	5	Exp. L.1.%/wt.					
(nD-d/2) Dielectric	_	0.89	553	4	30 mm	1.0000	5	Dispersion					
A 110 to		7.01	400	4	BP te	0.9500 0.9325	5	Flash Point C					
B   270 °C		32.5	470	4	tc	0.242	5	Fire Point M. Spec.		+			
C		)5.		4	ΔHc kcal/m ΔHf			Ultra V.					
A* 110 to B* 250 °C		1.57 34.8	884	5	ΔFf			X-Ray Dif. Infrared					
к ——	-				Viscosity			Solubility in +		+-			
	-				centistokes り °C		1	Acetone	<b>eo</b>				
tx °	5				<b>'</b>			Carbon tet. Benzene	e0 e0				
A'  20 to		7.36	378	5				Ether	••				
B' 1_110 °		)1.2  4.		5 5	B <sup>V</sup> to A <sup>V</sup> C			n-Heptane Ethanol	e0 e0	İ			
A'* 25 to	,	1.94	243	5	_A <u>V                                    </u>	_		Water		ļ			
B'* 110 °	C 180	02.0		5	(B <sup>V</sup> )  to			Water in		+			
Ac 270 to	0	6.87 4.8	54	5	(A <sup>V</sup> )  °C	-	1	-					
Cc Cc	- 17	77.		5	c <sub>p</sub> liq. *K								
Cryos. A consts. B					c <sub>p</sub> vap. *K								
t <sub>e</sub> °C	23	37.19	)	5	c <sub>v</sub> vap.								
$T_{\mathbf{R}} = 0.$								grams/100 gran		nt			
REFEREN	CES:	1-1	Ow			Calc. from d	et. d	ata 5-Calc. by for	mula				
SOURCE:				Do									
PURIFICA					stillation								
LITERAT	URE	REF	ERE	NCE	5:								

## TABLE III. THIAALKYL BENZENES

No. 1 (1-Thiaethyl)-benzene NAME STRUCTURAL FORMULA Methyl phenyl sulfide S-CH3 Molecular C7H8S Mole Ref. Molecular % Pur. Formula Weight 124, 200 Ref. Ref. F, P. \*C F, P. 100% dt/dP to °C/mm ١ ٠ĸ g 25°C 27.66 5 B. P. \*C 0.0517 h ВP 5 760 mm 193. f 0.0345 100 127. g' <u>•к</u> 30 97. 5 30 mm 0.7509 5 10 74. h' ∆Hm cal/g 1 35. 5 m to AHv cal/g Pressure n <u>•K</u> 25°C 105, 26 0.4886 mm 25°C 5 o 5 30 mm 97.26 te 1264. 5 BP 83.58 5 m' Density to 80.78 5 te te (d, e) n' ۰ĸ g/ml 20°C 1.0579 2 80.58 5 ٥' 1.0535 2 **d**<sup>t</sup> 5 20.59 AHV/Te 30 1.0491 4 Surface tension 97 to 111.03 5 1.0755 dynes/cm. 20°C 41.01 215 °C 25 to 0.1422 5 ь -0.0388 5 30 39.66 108.05 5 5 40 38.35 Ref. Index e'i 97 °C 0.1114 20°C 1.5868 [P] n<sub>D</sub> 2 Parachor d<sub>c</sub> g/ml 25 20°C 1,5840 2 vc ml/g tc °C 30 1.5815 4 30 40 "C" 0,7222 4  $P_c$  mm 297.1 5 Sugd MR (Obs.) 39.445 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 39.425≠ 25°C 1.0000 5 (nD-d/2)1.0578 1.0000 30 mm Dispersion 2 5 221. Dielectric RP 0.9480 5 Flash Point C te tc 0.9326 A 95 to 7.25779 1733.3 Fire Point B | 230 °C M. Spec. C 203. 5 ΔHc kcal/m Ultra V. A\* 95 to B\* 225 °C ΔHf 1.67133 X-Ray Dif. ΔFf 1638.13 Infrared ĸ Viscosity Solubility in centistokes Acetone t<sub>k</sub> [ to Carbon tet. ٠ċ Benzene 7.62197 A'ı 15 to Ether 95 **•**C 1958, 58 B' n-Heptane B<sup>V</sup> | 222. 5 Ethanol •c Water 20 to 2.03077 Water in 95 °C 1855.89 B'\* (B<sup>V</sup>) to Acl (A<sup>V</sup>)| Bc •c cp liq. ۰ĸ Cc Cryos. Aº c<sub>p</sub> vap. •ĸ consts. B° c vap. te °C 214.07 5 # C-S-C, S = 8.5 grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det, data 5-Calc. by formula SOURCE: API API **PURIFICATION:** LITERATURE REFERENCES:

No. 2 (1-Thiapropyl)-benzene STRUCTURAL FORMULA NAME Ethyl phenyl sulfide S- C2H5 Molecular C8H10S Molecular Mole Ref. Weight 138,226 Formula % Pur Ref Ref Ref. F.P. \*C F.P. 100% dt/dP f to \*C/mm g °K 25°C 52.22 B. P. °C h BP 0.0524 760 mm 205. 2 0.03435 5 f to 100 138. 5 g' °K 30 107. 5 30 mm 0.7641 5 10 84. h! ∆Hm cal/g 44. 5 to ΔHv cal/g m Pressure ٠ĸ n 99.71 25°C 5 mm 25°C 0.2455 5 ٥ 30 mm 90.84 5 1288.8 5 te BP 77.51 to m ١ Density g/ml 20°C 5 te te (d, e) 74.71 •ĸ 'n 5 1.0211 2 74.48 ۰, 25 30  $d_4^t$ 1.0166 ΔHv/T<sub>e</sub> 5 20.64 1.0121 4 Surface tension 1 105 105.50 5 1.0391 4 38.00 5 a dynes/cm. 20°C 1 225 •c 0.1366 102.40 5 -0.0390 4 30 36,68 5 25 ŧō c | 25 | 105 40 35.39 5 e¹ Ref. Index 0.1077 5 1,5670 20°C 2 Parachor [P]  $\mathbf{n}_{\mathbf{D}}$ d<sub>c</sub> g/ml 25 1.5644 20°C vc ml/g tc °C 30 1.5618 4 30 40 "C" 0.7247 4 P<sub>c</sub> mm 336.1 5 Sugd. MR (Obs.) 45.15 2 PV/RT Exp. L.1. %/wt. 44.043<sup>‡</sup> MR (Calc.) 25°C 1.0000 (nD-d/2) 1.0564 2 30 mm Dispersion 200. 2 Dielectric BP Flash Point °C te 105 to 7.30081 Fire Point 1790.1 t<sub>c</sub> B [240\_°C M Spec. C 200. 5 AHc kcal/m Ultra V ΔHf A\* | 105 to 1.76163 X-Ray Dif. ΔFf B+ 235 °C 1696.53 Infrared Viscosity Viscosic, centistokes °C Solubility in Acetone to Carbon tet •c Benzene A' | 25 to 7.66770 Ether 2022.76 B' 1105 °C n-Heptane B<sup>V</sup> | C' 219 5 Ethanol to •c Water A'\* 25 2.11869 to Water in •c (BV) B'\*105 1920.08 to Ac | (AV) to °C Bcl •c cp liq. ۰ĸ Сc Cryos. A\* c<sub>p</sub> vap. ۰ĸ consts. B° c, vap. te °C 227.17 5  $\neq$  C-S-C, S = 8.5 grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det. data 5-Calc, by formula API SOURCE: PURIFICATION: API LITERATURE REFERENCES:

NAME	4-M	ethyl-(l	thiaethyl)-benze		No. 3 STRUCTURAL FORMULA 文CH3					
	р- М	ethyl-(l	-thiaethyl)-benz	ene		13				
Mole % Pur.	Ref.	Molecu Formu	ecular C8H10S Molecular Weight 138,226			CH <sub>3</sub>				
		Re	1	T	Ref.			Ref		
F. P. °C			dt/dP			f to		I		
F.P. 100%			°C/mm	1	_	g  •K_				
B. P. °C	1		25°C BP	102,74 0,0528	5	h				
760 mm 100	217. 149.	5	t <sub>e</sub>	0.0340	5	f' to		1		
30	118.	5	30 mm	0.7764	5	g' <u>*K</u>		1		
10 1	94. 54.	5	ΔHm cal/g			h'		<del> </del>		
Pressure	<del> </del>	- + -	ΔHv cal/g			m to				
mm 25°C	0.11	84 5	25°C	105.06 94.54	5	"   ' <u>-</u> -				
t <sub>e</sub>	1318.4	5	30 mm BP	80.58	5	m' to		┼		
Density			t <sub>e</sub>	77.57	5	m' to				
g/ml 20°C	1.02		t <sub>e</sub> (d, e)	77.28	5	0'				
d <sup>t</sup> 25 4 30	1.01		ΔHv/T <sub>e</sub>	20.88	5	Surface tension		+		
	1.04	3 4	d 120 to	111.23 0.1413	5	dynes/cm. 20°C	38.89	5		
b	-0.03	80 4	e 240 °C		5	¥ 30	37.69	5		
Ref. Index		,	e'   120 °C		5	40	36.52	5		
<sup>n</sup> D 20°C	1.57		d <sub>c</sub> g/ml			Parachor [P] 20°C		Ì		
30	1.56		v mi/g			30				
"C"	0,72	80 4	t <sub>c</sub> °C	ļ		40 Sugd.	336.1	5		
MR (Obs.)			PV/RT		+	Exp. L.1.%/wt.	330.1	+		
MR (Calc. (nD-d/2)	1,06		2500	1.0000	5	u.				
	1.00	50 2	mm ∪د ا	1.0000	5	Dispersion	215.	2		
Dielectric	+		BP te	0.9399 0.8640	5	Flash Point °C				
A 120 to B 1255 °C	7.37	224   5	t <sub>C</sub>			Fire Point		-		
c	198.	5	ΔHc kcal/m			M. Spec. Ultra V.				
A* 120 to	1.82		ΔHi ΔFf	1		X-Ray Dif.				
B*  25 <u>0 °C</u> K	_ 1769.65	5   5	Viscosity	<del> </del>	+-	Infrared		$\perp$		
c	_		centistokes		Į.	Solubility in Acetone				
t <sub>k</sub>			∥ <b>າ °</b> c			Carbon tet.				
X I		2/2 5	-	1		Benzene				
A'   25 to B'   120 °C	7.74					Ether n-Heptane				
<u>c'</u> — — —	218.	5				Ethanol				
A'# 25 to			<u> </u>	_		Water Water in				
B'*120 °C		) 5	-   ``-↓''		]			+-		
Acl to Bc tc C			(A <sup>V</sup> )  °C		-	4				
Cc	-	İ	c <sub>p</sub> liq. *K	- [	1			İ		
Cryos. A° consts. B°			c <sub>p</sub> vap. *K							
te °C	240.34	1 5	c <sub>v</sub> vap.	1						
≠ C-S-C,						grams/100 gra		nt		
REFEREN	CES: 1-1			-Calc. from d	et. d	ata 5-Calc. by for	mula			
SOURCE:		AF								
PURIFICA		AF								
LITERATU	RE REF	ERENC	ES:							

No. 4 STRUCTURAL FORMULA NAME (1-Thiabutyl)-benzene n-Propyl phenyl sulfide S-C3H7 Molecular C9H12S Mole Ref. Molecular Weight 152, 252 Formula % Pur. Ref Ref Ref. F.P. °C F.P. 100% dt/dP f to °C/mm g °K. 25°C 123.26 B, P. °C h ВP 0.0529 5 760 mm 220. 2 ſ 5 0.0338 152. to 100 5 g¹ •K 30 121. 5 30 mm 0.7790 5 97. 10 5 h' ∆Hm cal/g 57. 5 to ΔHv cal/g m Pressure •ĸ n 25°C 96.83 mm 25°C 0.0972 5 o 30 mm 86.75 5 1326.6 t. BP 73.88 5 Density g/ml 20°C to m 71.04 5 te (d, e) •ĸ 'n 0.9995 2 70.80 ď 25 30 ΔHv/T d4 0.9952 2 20.92 5 0.9909 4 Surface tension 120 102.47 5 to 1.0167 4 dynes/cm. 20°C 36.77 0.1210 5 1 245 <u>.c</u> h -0.0386 4 30 35.52 to 99.46 0.1051 25 40 34, 30 5 • 1 Ref. Index 120 •c 20°C 1.5571 2 [P]  $\mathbf{D}^{\mathbf{Z}}$ Parachor d<sub>c</sub> g/ml vc ml/g 25 1.5551 2 20°C 30 1.5531 4 30 40 "C" 0.7279 4 P<sub>c</sub> mm Sugd. 375.1 5 MR (Obs.) 49.044 2 PV/RT Exp. L.1.%/wt. 48.661# MR (Calc.) 1.0000 25°C 5 (D-d/2) 1.0574 2 30 mm 1.0000 5 Dispersion 196. 2 Dielectric BP 0.9401 Flash Point °C 0.9225 120 to 7.38536 Fire Point t<sub>c</sub> 1878.4 B 1260 °C M Spec. Ç 197. 5 AHc kcal/m Ultra V ΔHf A\* | 120 to B\* | 255 °C 1.88039 5 X-Ray Dif. A Ff 1783.98 Infrared Viscosity Viscos., centistokes °C Solubility in Acetone to Carbon tet. •c Benzene A1 25 to 7,75758 Ether B' 1120 °C 2122.53 n-Heptane C В 217. to Ethanol ÃV A'\* •c Water A\*\* 25 to B\*\* 120 °C 2.24414 5 Water in (BV) 2019.30 to Ac | to  $(A^{V})_{I}$ •c Bc | •c cp liq. ۰ĸ Cc Cryos. A. c<sub>p</sub> vap. •ĸ consts. B° c, vap. te °C 243,67 5 # C-S-C, S = 8.5 grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det. data 5-Calc, by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

						No. 5						
NAME	(2-	Methy	/1 - 1 -		STRUCTURAL FORMULA							
1 [	Iso	Dropy	l phe	nyl sulfide			S-CHCCH3					
}		1				$\dashv$	S-CHC CH3					
Mole	Ref	. Mo	lecul	Molecular Weight 152.252								
% Pur.		For	mul	9.12 V	Veight 152.25	52						
			Ref.			Ref.				Ref.		
F. P. *C				dt/dP			1 1 1	to				
F.P. 1009	•			*C/mm 25*C	42.53	_	g '_	<u>•</u> K				
B.P. C	200		١. ا	BP	63.52 0.0523	5 5	h					
760 mm	208. 141.		5	t	0.0341	5	f'	to				
30	110.		5	30 mm	0.7654	5	8'   '_	<u>*K</u>		1		
10	87. 47.		5	ΔHm cal/g			<u>h'</u>					
	+ ***		-	ΔHv cal/g			m	to		i		
Pressure mm 25°C	0.1	1982	5	25°C	92.19	5	"   '-	<u>*K</u>				
t <sub>e</sub>	1298.		5	30 mm BP	83.62	5				1		
Density						t.	68.73	5	m'	to		1
g/ml 20°0		9852	2	t <sub>e</sub> (a, e)	68.53	5		_ <u>•</u> K				
dt 25		9810 9768	2 4	ΔHv/T <sub>e</sub>	20.78	5				+		
		0020	4	d 110 to	97.48	5	Surface t dynes/cn		34.71	5		
ь		384	4	230 °C	0.1256 94.70	5	¥,110.0,CI	30	33.54	5		
Ref. Index				e'   110 °C	0.1004	5		40	32.40	5		
n <sub>D</sub> 20°0		5464	2	d <sub>c</sub> g/ml			Paracho					
25		5446 5428	2	v <sub>c</sub> m1/g				20°C				
"C"		7256	4				Į.	40				
MR (Obs.			2	P <sub>c</sub> mm				Sugd.	375.1	5		
MR (Calc.		661#	5	PV/RT 25°C		_	Exp. L.1					
(nD-d/2)	1.0	0538	2	30 mm	1.0000	5	Dispersi		192.	2		
Dielectric				BP	0.9430	5	Flash Po			+-		
A 110 to		32777	5	t e	0.9265	5	Fire Poi					
B (245 °C	1809.9 199.	,	5	ΔHc kcal/m		├	M. Spec.					
A* 110 to		32706	-	ΔHf	1	1	Ultra V. X-Ray D		-			
B* 240 °C			5	ΔFÍ		<b> </b>	Infrared			1		
к				Viscosity			Solubility	/ in +		$\top$		
t <sub>k</sub>	-			centistokes り *C	Į.		Acetone					
🕏   •	;			'		1	Carbon Benzene					
A1   25 to		69636				1	Ether			-		
B' 110°C	2045.1	13	5	B <sup>v</sup> to	<del>                                     </del>	<del>                                     </del>	n-Hepta Ethanol					
A'+ 25 to		18833	<b></b>	B <sup>V</sup> to A <sup>V</sup>   *C		1	Water					
B'* 110 °C			5	(B <sup>V</sup> )  to	1	1	Water i	n		ــــــــــــــــــــــــــــــــــــــ		
Acl to				(A <sup>V</sup> )  °C	1	1						
Bc tc *C	<u>:</u>			c liq. °K	1	1	1					
Cc			Ь—	(1	1	1	1			1		
Cryos. A'				c <sub>p</sub> vap. *K		1						
t <sub>e</sub> °C	230,40	 6	5	c <sub>v</sub> vap.		1						
	S = 8.5					-	grams	/100 gra	ms solve	nt_		
		Dow	2-A	PI 3-Lit. 4-	Calc, from de	et. de						
SOURCE:			AF					_				
PURIFICA	TION:		AF	PI .								
LITERATU		ERE	NCE	S:								
1												

No. 6 STRUCTURAL FORMULA NAME 3-Methyl-(1-thiapropyl)-benzene m-Methyl-(1-thiapropyl)-benzene **₹**C2H5 Molecular C9H12S Molecular Mole Ref. Formula Weight 152, 252 % Pur Ref. Ref. F, P. dt/dP f to F.P. 100% °C/mm g <u>•</u>K ١ 25°C 117.63 B. P. °C h BP 0.0528 5 760 mm 219. 2 5 ſ١ 0,0338 to 100 15Í. g' °K 120. 5 30 30 mm 0.7773 5 10 96. h' AHm cal/g 56. 5 to ΔHv cal/g m Pressure •K n 25°C 96.59 mm 25°C 0.1022 5 o 5 30 mm 86.59 1327.3 5 t<sub>e</sub> ВP 73,87 5 to m Density g/ml 20°C 5 71.06 te te (d, e) •ĸ n' 5 0.9987 2 70.83 ۰, 25 d<sub>4</sub> 0.9947 2 AHV/T 5 20.98 30 0.9907 4 Surface tension 120 102.03 5 to 1.01470 -0.0<sub>3</sub>80 4 36.65 35.49 dynes/cm. 20°C  $\frac{-240}{25}$ •c 0.1286 99.22 5 h 4 30 5 à٠ to 1 40 34.36 5 e¹ Ref. Index 120 °C 0.1052 1.5590 n<sub>D</sub> 20°C 2 Parachor [P] d<sub>c</sub> g/ml 25 1.5570 2 v ml/g 20°C 30 1.5550 4 30 40 "C" 0.7312 4 P<sub>c</sub> mm 375.1 5 Sugd MR (Obs.) 49. 22 2 PV/RT Exp. L.1.%/wt. 48.661 <sup>‡</sup> MR (Calc.) 25°C 1.0000 5 (nD-d/2) 1.0596 2 30 mm 1,0000 Dispersion Dielectric BP 0.9420 Flash Point °C t<sub>e</sub> 0.9248 120 to 7.38306 5 Fire Point 1872.9 t<sub>c</sub> В <u>L 255 °C</u> 5 M Spec. Ultra V С 197. 5 AHc kcal/m ΔHf A\* 120 to 1.87513 5 X-Ray Dif. ΔFf B+ \_250 °C 1777.50 Infrared ĸ Viscosity Solubility in c centistokes Acetone •c to t<sub>x</sub> Carbon tet. •c Benzene A' 25 to 7.75513 Ether B١ \_120 °C 2116.32 n-Heptane вv C١ 217. 5 Ethanol  $\widetilde{\bar{A}}^{V}$ •c Water A1# 25 to 2.24240 5 Water in B'\* 120 °C (BV) 2013.29 to Aci to (AV) °C •c Bc cp liq. ۰ĸ Cc Cryos. A\* c<sub>p</sub> vap. ٠ĸ consts. B° c<sub>v</sub> vap. te °C 242,64 5 # C-S-C, S = 8.5 grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

NAME	4-Methyl	-(1 -t	hiapropyl)-benz	ene	STRUCTURAL FORMULA					
	p-Methyl	-(1-t	hiapropyl)-benz	ene		<b>2</b> C2H5	1			
Mole % Pur.	Ref. Mol	ecul.		Molecular Weight 152, 2	52	€ <sub>H3</sub>				
		Ref.			Ref.	Re	eſ.			
F.P. °C			dt/dP			f to	1			
F.P. 100%			*C/mm 25*C	123, 26	5	g '°K	-			
B. P. *C 760 mm	220.	2	BP	0.0529	5	h	_			
100	152.	5	t <sub>e</sub>	0.0338	5	f to				
30 10	121. 97.	5	30 mm	0.7790	5	8' ' <u>*K</u>				
l i	57.	5	ΔHm cal/g			m to	$\dashv$			
Pressure			ΔHv cal/g 25°C	96, 83	_	n oK				
mm 25°C	0.0972 1329.8	5	30 mm	86.75	5	•				
Density	1327.0		BP	74.03	5	m¹ to	$\neg$			
g/ml 20°C		2	t <sub>e</sub> (d, e)	71.19 70.98	5	n'   <u>*</u> K				
dt 25	0.9956	2 4	AHv/Te	20.97	5		_			
a 30	1.0156	4	d 120 to	102.3	5	Surface tension dynes/cm. 20°C 36.78 5				
ь	-0.0380	4	e 245 °C d 25 to	0.1284	5	30 35.62 5				
Ref. Index			e'   120 °C	99.46 0.1051	5	40 34.48 5	5			
n <sub>D</sub> 20°C	1.555	2 2	d <sub>c</sub> g/ml			Parachor [P] 20°C	-			
30	1.551	4	vc ml/g tc °C			30				
"C"	0.7253	4	P <sub>c</sub> mm			40 Sugd. 375.1 5				
MR (Obs.)	48.9	2	PV/RT		+	Exp. L.1,%/wt.	$\dashv$			
MR (Calc. (nD-d/2)	1.055	5	25°C	1.0000	5	u.	-			
Dielectric	1.055	1	30 mm BP	1.0000 0.9420	5	Dispersion	4			
A 120 to	7,38535	5	t te tc	0.9245	5	Flash Point *C Fire Point				
B 1 260 °C	1878.4	5			-	M. Spec.				
A* 120 to	197.	5	ΔHc kcal/m ΔHf		1	Ultra V.				
B*  255 °C		5	ΔFf		<u> </u>	X-Ray Dif. Infrared				
K	-	l	Viscosity		1	Solubility in +				
t <sub>k</sub> tō	- [		centistokes り ・C		}	Acetone				
ex l			<b>!</b> '		ŀ	Carbon tet. Benzene				
A'   25 to B'   120 °C		5				Ether				
c. 120	217.	5	B <sup>V</sup> to C			n-Heptane Ethanol				
A1+ 25 to				_		Water				
B'+ 120 °C	<del></del>	5	(B <sup>V</sup> )  to		1	Water in	_			
Acl to			(A <sup>V</sup> )  °C		╁	╣				
Bc tc Cc		$\perp$	c <sub>p</sub> liq. *K							
Cryos, Acconsts, B			c <sub>p</sub> vap. *K							
t <sub>e</sub> °C	243.78	5	c <sub>v</sub> vap.							
≠ C-S-C,	S = 8.5					grams/100 grams solvent				
REFEREN	CES: 1-Dow	2-A	PI 3-Lit. 4-	Calc, from de	et. da	lata 5-Calc. by formula				
SOURCE:		ĄF								
PURIFICA		AF								
LITERATU	JRE <b>R</b> efere	NCE	S:							

No. 8 2-Ethyl-(1-thiaethyl)-benzene STRUCTURAL FORMULA NAME o-Ethyl-(1-thiaethyl)-benzene S-CH3 Molecular C9H12S Mole Ref. Molecular Weight 152.252 % Pur Ref. Ref. Ref. F.P. °C F.P. 100% dt/dP f to °C/mm •K g 25°C 192.95 0.0533 B. P. \*C h 5 BP 760 mm 228. 2 5 t<sub>e</sub> 0.0336 ſ١ to 100 159. 5 g† •K 30 128. 5 0.7883 5 30 mm 10 104. 5 h' ∆Hm cal/g 1 63. 5 to m AHv cal/g Pressure •ĸ 25°C n 99.87 mm 25°C 0.0602 o 30 mm 88.82 5 5 1349.1 5 t<sub>e</sub> 75.75 BP m' to Density g/ml 20°C 72.79 5 t (d, e) •K 1.025 2 72.54 5 ٥' 1.021 2  $d_4^t$ AHV/T 67,73 5 30 1.017 4 Surface tension 1 130 105.54 5 to 1.0410 40.67 dynes/cm. 20°C 1 255 •c 0.1307 5 Ъ -0.0380 4 30 39.41 5 25 to 102.55 40 38.19 5 e¹ Ref. Index 130 0.1073 5 1,5708 20°C 2 [P]  $\mathbf{n}_{\mathbf{D}}$ Parachor d g/ml v ml/g t C C 1.5688 25 2 20°C 30 1.5668 4 30 452.61 5 40 "C" 0.7264 4 P<sub>c</sub> mm Sugd 375.1 5 MR (Obs.) 48.8 2 PV/RT 48.661# Exp. L.1.%/wt. MR (Calc.) 25°C 1.0000 5 1.058 2 (nD-d/2) 1.0000 30 mm 5 5 Dispersion Dielectric BP 0.9402 Flash Point °C  $\mathbf{t_e}$ 0.9223 A 130 to 7.42660 5 Fire Point B 1270 C 1927.4 M Spec. Ultra V c AHc kcal/m 196. ΔHf 1.91448 A\* 130 to 5 X-Ray Dif. ΔFf B+ 265 °C 1831.36 Infrared ĸ Viscosity Viscouri, centistokes °C Solubility in Acetone to Carbon tet. •c Benzene 25 to 7.80142 5 Ether B' (130 °C 2177.90 n-Heptane в C' 216. 5 to Ethanol Āvi •с Water A1# 25 to 2,28373 5 Water in B'\* 130 °C 2073.90 (B<sup>V</sup>) to Ac to (AV) •c Bc •c \_tc\_\_ cp liq. Cc •ĸ Cryos. A. c<sub>p</sub> vap. ٠ĸ consts. B° c, vap. te °C 5 252.59 # C-S-C, S = 8.5 grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det. data 5-Calc, by formula API SOURCE: PURIFICATION: API LITERATURE REFERENCES:

NAME	Thiophene							STRUCTURAL FORMULA				
Mole % Pur. 99.	989	Ref.	Mo	lecula mula		Molecular Weight 84.13	,	HC S	- 11			
				Ref	·	T	Ref.				Ref.	
F. P. *C	$\top$	-38, 2	1	2	4./45	<u> </u>	1					
F.P. 1009		-38.2		2	dt/dP °C/mm	3	1	f g l	to •K		1 1	
B. P. *C		- 30. E			25°C	0.2655	5	h			1 1	
760 mm		84.1	6	2	BP	0.0428	2	<u>r</u>			+	
100		29.9		4	t <sub>e</sub>	0.03533	5	g'	to *K		1 1	
30 10		5.9 -12.3		4 4	30 mm	0,6002	4	h'				
i		-42.		5	ΔHm cal/g		$\sqcup$	<del> </del>			+-+	
Pressure	$\top$				ΔHv cal/g		_	m l	to •K			
mm 25°C	- 1	79.6	8	4	25°C 30 mm	99.10	5					
te		970.8		5	BP	89.40	Ź	<del></del>		ļ	+	
Density	_				t <sub>e</sub>	87.49	5	m'    n'	to •K		1 1	
g/ml 20°0	7		6485 5887	2 2	t <sub>e</sub> (d, e)	88.06	5	;;	^-	İ		
d <sub>4</sub> 25			5309	2	ΔHv/T <sub>e</sub>	20.14	5					
a	┰		8877	4	d 5 to	103.17	5	Surface ten		33.89	5	
ь	ı	-0.0		4		0.1636	5	dynes/cm.	30	32,37	5	
Ref. Index	,			1	d' to				40	30.89	5	
n <sub>D</sub> 20°0		1.5	2890	2		0.227	+	Parachor [	Pl			
25	- 1	1.5	2572	2	d g/ml	0.337 2.97	3	1	20°C			
30	4	1.5	2257	2	vc ml/g tc °C	297.	3		30 40		1 1	
"C"	$\perp$	0.6	512	4	P <sub>c</sub> mm	37164.	3			190.7	5	
MR (Obs.		24.3		2	PV/RT		$\vdash$	Exp. L.1.%		- /	+	
MR (Calc. (nD-d/2)	)	24.7		5	25°C	0.9985	5	u.	/wt.			
	+	0.9	9648	2	30 mm	1.0000	5	Dispersion		162.7	2	
Dielectric				L_	BP	0.9612 0.9545	4 5	Flash Point	°C			
A 5 to			5926	2	te	0.2612	4	Fire Point				
B 1 155 °C	<u>-                                     </u>	246.0 221.3		2 2	ΔHc kcal/m	<del> </del>	<del> </del>	M. Spec.				
A* 5 to	_		9199	5	ΔHí			Ultra V.		l		
B*[ 110 °C		166.1		5	ΔFf			X-Ray Dif. Infrared				
к — — -	-				Viscosity			Solubility in	+	<del> </del>	+	
t, to	-1				centistokes			Acetone	•	<b>∞</b>		
t <sub>k</sub> to					η ·c			Carbon tet	<b>:.</b>	oc		
A'   to	+			-			1	Benzene Ether		<b>80</b>		
B'   'C				1		<b>_</b>	ļ	n-Heptane		ec ec		
C'					B <sup>V</sup> to A C	1	1	Ethanol		œ0		
A¹+ to						_		Water Water in		İ	- 1	
B'* *(	3				(B <sup>V</sup> )  to			Water in		<del> </del>		
Ac 155 to	2   .		3243	4	(A <sup>V</sup> )  °C		<u> </u>			1		
Bc tc Cc	- 1	378.5 241.	8	4	c <sub>p</sub> liq.288 'K	0.3470	2				- [	
	-			-	11	0.3569	2			ļ		
Cryos. A consts. B			114	3'	c <sub>p</sub> vap. *K							
t <sub>e</sub> °C	1	92.3	4	5	c <sub>v</sub> vap.	<u></u>	1	L				
$T_R = 0.$								grams/10			ent	
REFEREN	CES	5: 1-	Dow	2-A	PI 3-Lit. 4-	Calc. from de	et. da	ta 5-Calc. l	y for	rmula		
SOURCE:				API								
PURIFICA	TIO	N:		API								
LITERAT	URE	REF	ERE	NCE	S: 3 Ind. Eng.	Chem, 44. 1	430 (	1952) White e	tal.			
						<u></u> , -	•	, ,	•			
1												
1												
I												
1												

No. 2 NAME 2 - Methylthiophene STRUCTURAL FORMULA HC -- сн HC SCH3 Molecular C5H6S Molecular Mole Ref. Weight 98,164 % Pur Formula Ref. Ref Ref. -63, 38 2 F.P. °C F.P. 100% dt/dP f to \*C/mm g <u>°</u>K 25°C 0.7533 5 B.P. °C h BP 2 0.0460 760 mm 112.56 3,2 5 f 0.0354 100 54.26 to 4 g' •K 30 28,55 5 30 mm 5 0.6437 10 9.20 h' ∆Hm cal/g -23.3 5 to m ΔHv cal/g Pressure °K n 95.83 95.46 25°C 24.89 mm 25°C 5 o 30 mm 5 1061. 5 t<sub>e</sub> 83.00 5 BP to m' Density g/ml 20°C ١ 81.38 81.20 5 te te (d, e) •ĸ 'n 1.0193 2 0 1.0139 2  $d_4^t$ 25 ΔHv/Te 5 20,08 30 1.0084 4 Surface tension 25 to 99.69 1.0410 4 dynes/cm. 20°C 32, 30 1 •c 125 0.1483 Ъ -0.00108 4 30 30.94 ď٠ to 1 40 29,62 5 e' Ref. Index n<sub>D</sub> 20°C 1.5203 2 [P] Parachor d<sub>c</sub> g/ml 0.351 25 1.5174 20°C 2 vc ml/g tc °C 5 2.846 30 1.5144 4 30 333.0 5 40 "C" 0.6699 4 P<sub>c</sub> mm 35048. 5 S = 48.5Sugd. 229.6 5 MR (Obs.) 29.29 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 29.356 5 1.0000 25°C (nD-d/2)1,0106 2 30 mm 1.0000 5 Dispersion 160. 2 Dielectric BP 0.9580 Flash Point °C 0.9585 t<sub>e</sub> A 28 to 6.93897 3 Fire Point tc 0.259 B [180 °C 1326,474 M Spec. С 214.309 AHc kcal/m Ultra V AHf A\* 0 to 1.29767 X-Ray Dif. ΔFſ B\*L \_2<u>8\_°C</u> 1239.4 Infrared Viscosity Viscos., centistokes °C Solubility in c Acetone to Carbon tet. •c Benzene 0 to 7.14504 Ether 00 B١ \_2<u>8</u> °C 1428.6 5 n-Heptane œ  $\mathbf{B}^{\widetilde{\mathbf{v}}}$ C 223.3 5 to Ethanol œ ÃV i °C A'+ Water to Water in B'\* (BV) to Ac | 180 to (AV) 7.**3**5668 1677.7 °C Bc tc C cp liq. °K Сc 263.6 5 Cryos. A. 0.025 c<sub>p</sub> vap. 31 consts. B. c, vap. te C 124.66 5  $T_R = 0.75 T_c$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES: 3 Ind. Eng. Chem. 44, 1430 (1952), P. T. White, et al.

NAME	3-Methylthiophene						STRUCTURAL FORMULA			
Mole	Ref	. Mol	ecula		Molecular		II II			
% Pur. 99.	99   3'	For		30 1	Veight 98.164					
<del></del>	1 (2.2		Ref.			Ref.		Ref		
F.P. °C F.P. 100%	-68.9	17	3'	dt/dP °C/mm			f to K			
B. P. °C	·		$\vdash$	25°C	0.8426	5	g <u>K</u>	- 1		
760 mm	115.4		3	<b>B</b> P	0.0462 0.0355	5	<del></del>			
100 30	56.7 30.7		4 5	t <sub>e</sub>	0,6506	5	f' to to			
10	10.9		5	30 mm	25,65	31	h'			
1	-22.2	<u>.                                    </u>	5	ΔHm cal/g	25.05	J.	m to			
Pressure	١.,,		5	ΔHv cal/g 25°C	96.42	5	n  •K_			
mm 25°C t <sub>e</sub>	1063.		5	30 mm	95.85	5	0			
Density	<del>                                     </del>			BP t	83.40 81.66	32 5	m' to			
g/m1 20°C		2183	2	te te (d, e)	81.ò0	5	n' _ <u>*K</u>	- 1		
d <sup>t</sup> 25		01647 01110	2 4	ΔHv/T <sub>e</sub>	20.00	5				
		04326	4	d 30 to	100.38	5	Surface tension	2 5		
<b>a</b> b		01067		_e130 °C d' 0 to	0.1471	5	dynes/cm. 20°C 32.66	7   5		
Ref. Index				e' 30 °C	98.85 0.0982	5	40 29.9	5 5		
<sup>n</sup> D 20°C		5204 <b>2</b> 51758	2 2	d <sub>c</sub> g/ml	0, 357	5	Parachor [P]	İ		
30		51467	4	v mi/g	2.799	5	20°C			
"C"	0.6	6684	4	-	337.6	5	40	-		
MR (Obs.)	29.2	225	2	P <sub>c</sub> mm	35908.	5	S = 48.5 Sugd. 229.6	5		
MR (Calc.	) 29.3		5	PV/RT 25°C	1.0000	5	Exp. L.1.%/wt.			
(nD-d/2)		0095	2	30 mm	1.0000	5	Dispersion 159.	2		
Dielectric		20/11		BP t <sub>e</sub>	0.9619 0.9529	5	Flash Point °C			
A 1 30 to B   185 °C		98611 362	3	tc	0.7527	-	Fire Point	_		
c '	216.7		3	∆Hc kcal/m	1		M. Spec. Ultra V.	1		
A*  30 to		34753	5	ΔHf ΔFf			X-Ray Dif.			
B*  140 °C	1276.	•	5	Viscosity		<del>                                     </del>	Infrared			
c	_			centistokes			Solubility in Acetone			
t <sub>k</sub> to				η 20 °C	0.676	2 2	Carbon tet.			
t <sub>x  </sub> °C		33318	5	30	0.599	2	Benzene Ether			
B'   30 °C	1541.1	ı	5	<u> </u>			n-Heptane			
C'	232.	38	5	B <sup>V</sup> 10 to A <sup>V</sup> 140 °C	303.20 Z.79584	4	Ethanol	- 1		
A'* 10 to		67608	5	I⊢.=v. <del>.  </del>	2.17504	1	Water Water in			
B'# 30 °C		40824	5	1						
Bc tc °C	1724.		5			+	1			
Cc	<b>–</b> 266. 1	7	5	c <sub>p</sub> liq. 293°K	0.3642	3'				
Cryos. A consts. B		0304	32	c <sub>p</sub> vap.125°K 200	0.3096 0.3477	3'				
t <sub>e</sub> °C	127.	66	5	c <sub>v</sub> vap.	1					
$T_{\mathbf{R}} = 0.7$							grams/100 grams so	lvent		
REFEREN	CES: 1-	-Dow	2-A	PI 3-Lit. 4-	Calc. from de	et. da	ata 5-Calc. by formula			
SOURCE:			API							
PURIFICA	TION:		API							
LITERATU	JRE RE	FERE	NCE	S: 3 Ind. Eng.	Chem. 44, 1	430 (	1952), P. T. White et al.	;		
3' J.A.C.	<b>S</b> . <u>75</u> , 5	075 (1	953),	McCullough et	al.					
ı										

No. 4 STRUCTURAL FORMULA 2-Ethylthiophene NAME HC ÇC2H5 Molecular C6H8S Mole Ref. Molecular Formula Weight 112.190 Ref. Ref. dt/dP to F. P. 100% °C/mm g <u>•ĸ</u> 25°C B. P. °C 1.691 5 h BP 0.04865 2 760 mm 134. 72. 2 4 0.0361 f to 100 ŧ, •ĸ g† 5 5 30 45.33 30 mm 0.6832 5 10 24 h' ∆Hm cal/g -10. 5 to AHv cal/g m Pressure •ĸ 25°C n 89.64 87.69 5 mm 25°C 10.39 5 a 30 mm t<sub>e</sub> 1114. 5 75.95 5 BP m' to Density 74.04 5 te (d, e) g/ml 20°C n' •K 0.9930 74.00 5 01 25 0.9880 2 d4 AHV/T 19.68 5 30 0.9830 4 Surface tension ī d 45 93.69 5 to 1.0130 31.99 dynes/cm. 20°C 5 150 <u>·c</u> 5 0.1324 Ъ -0.00100 4 30 30,72 5 ٠<u>٠</u> 20 92.04 1 40 29.49 5 Ref. Index •' 45 0.0959 20°C 1.5122 [P] n<sub>D</sub> 2 Parachor dc g/ml 25 v ml/g 1.5094 2 20°C 30 1.5066 4 30 350.0 5 40 "C" 0.6776 4 P<sub>c</sub> mm 29781. 5 Sugd. 268.7 5 MR (Obs.) 33.913 33.974# 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 5 1.0000 25°C 5 (nD-d/2) u. 1.0157 2 30 mm 1.0000 Dispersion 154. 2 Dielectric RP 0.9600 0.9493 5 Flash Point °C te 5 A 45 to 6.9563 Fire Point tc В 1414.2 178₹ .C 5 M Spec. C 213.0 5 AHc kcal/m Ultra V ΔHf A\* | 45 to 1.3601 5 X-Ray Dif. ΔFf B\* 1160 °C 1324.29 Infrared ĸ Viscosity Viscos.., centistokes °C Solubility in c Acetone to t t Carbon tet. •c Benzene A' 15 to 7, 30149 Ether B١ <u>\_45</u>\_ •c 1598.0 n-Heptane вv C١ 229. 5 Ethanol ÃV I •c Water AI+ 20 to 1.69543 5 Water in B'# 45 •c (BV) 1499.7 5 to Ac | 195 to (AV) 7.37327 5 •c Bc \_tc\_ •c 1774.2 cp liq. •ĸ Cc 261.9 Cryos. A. c<sub>p</sub> vap. •ĸ consts. B° c<sub>v</sub> vap. to C 148,76 5  $T_R = 0.75 T_c$ # C-S-C, S = 7.2 grams/100 grams solvent REFERENCES: 1-Dow 4-Calc. from det. data 5-Calc. by formula 2-API 3-Lit. SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

NAME	3-Ethylthiophene								STRUCTURAL FORMULA				
Mole	ı	Ref.	Mol	ecul	r C6H8S	M	folecular			HCCI	· 2 <sup>m</sup> 5		
% Pur.			FOF			1,7	eight 112.19	_				TRACE	
	<del>_</del>			Ref.		-		Ref.				Ref.	
F.P. °C F.P. 100°		9. 1		2	dt/dP *C/mm				f g	to K			
B. P. °C 760 mm		6.		2	25°C BP		1.809 0.0490 0.0362	5 5 5	h f'	l to		+	
100 30	4	4. 6.48	3	4 5	t <sub>e</sub> 30 mm		0.6865	5	g'				
10		6. 9.		5 5	ΔHm cal/g				h'	<u> </u>		$\perp$	
Pressure mm 25°C		9.67	79	5	ΔHv cal/g 25°C 30 mm BP		89.92 87.89 76.15	5 5 5	m n o	to			
Density g/ml 20° dt 25 d4 30	5	0.99		2 2	t <sub>e</sub> (d, e)		74.19 74.18	5 5 5	n' o'	to K*K			
4 30		0.98	382	4	ΔHv/T <sub>e</sub>	_	20.33	5	Sur	face tension			
a b		0.0		4	d 45 t		93.98 0.1311 92.28	5		nes/cm. 20°C 30 40	32.64 31.34 30.14	5 5 5	
Ref. Inde: n <sub>D</sub> 20° 25 30		1.51 1.51 1.50	20	2 2 4	d <sub>c</sub> g/ml v <sub>c</sub> ml/g t <sub>c</sub> *C	c	0.0945	5	Pa	rachor [P] 20°C 30	30.14		
"C"		0.67	771	4	tc *C		30020.	5		40 Sugd	268.7	5	
MR (Obs. MR (Calc (nD-d/2)		33.88 33.97	74#	2 5 2	PV/RT 25°C 30 mm		1.0000	5		p. L.1.%/wt. u. spersion			
Dielectrie	:				BP		0.9600	5		sh Point C		+-	
A 45 to B 200 °C	142	6. 95 2. 0 3. 2	30	5 5 5	te tc ΔHc kcal/n	_	0.9488	5	Fin	Spec.		-	
A* 45 to B* 160 °C	,	1.35	38	5	ΔHf ΔFf Viscosity				X-Inf	ra V. Ray Dif. rared			
					centistokes	c			A.	ubility in <sup>T</sup> cetone arbon tet, enzene			
A'   15 to B'   45 °	160	7. 29 06. 8 29. 0	80	5 5 5	B <sup>v</sup>   t	0			E n-	ther -Heptane thanol			
A'* 20 to B'* 45 *		1.69	903	5	⊢.=v. <del>-</del>	C				ater ater in			
Acl 200 to Bc tc	C   178	7.3° 36.2 5 <b>2</b> .8	711	5 5 5		С К							
Cryos. A consts. B					P	K							
t <sub>e</sub> °C	15	1.0	7	5	c <sub>v</sub> vap.								
$T_R = 0.$	75 T <sub>C</sub>				# C-S-C, S =	- 7,	2			rams/100 gra	ms solve	ent	
REFEREN	CES:	1-D	ow	2-A	PI 3-Lit.	4-0	Calc. from de	t. da	ta !	-Calc. by for	mula		
SOURCE:				AF									
PURIFICA	TION:			AF	I								
LITERAT	URE F	REFI	ERE	NCE:	5:								

No. 6 2, 3-Dimethylthiophene STRUCTURAL FORMULA NAME -ссн<sub>3</sub> HC √ѕ∕Ёсн₃ Molecular C6H8S Molecular Weight 112, 190 Mole Ref. % Pur Formula Ref Ref. Ref. -49.0 2 F, P. °C dt/dP to F.P. 100% °C/mm <u>°K</u> g 25°C 2,201 5 B. P. \*C h BP 0.04996 5 760 mm 141.6 2 t<sub>e</sub> 0.0365 5 ſ١ to 100 g' \_K 50.49 5 30 30 mm 0.6975 5 5 10 29.3 h' ∆Hm cal/g -6.2 to m ΔHv cal/g Pressure °K 25°C 5 n 91.16 mm 25°C 7,8498 o 30 mm 88.69 5 t<sub>e</sub> 1137.1 5 ВP 76,76 5 Density m to 74.73 5 te te (d, e) g/ml 20°C 'n' •ĸ 1.0021 5 74.67 o' 0.9970 2  $\mathbf{d_4^t}$ ΔHv/Te 19.46 5 30 0.9919 4 Surface tension 80 d 95.30 5 to 1.0225 dynes/cm. 20°C 33.18 <u>l 160</u> •c 0.1309 5 -0.02102 5 30 31.85 93.59 to 1 5 30.56 40 Ref. Index e¹ •c 0.0970 80 20°C 1.5192 [P] n<sub>D</sub> Parachor d g/ml v ml/g 25 1.5166 20°C ml/g 30 1.5137 4 c 30 •c 362.0 5 tč 40 "C" 0.6801 4 P<sub>c</sub> mm 5 5 29100. Sugd. 268.7 33.99 33.974# MR (Obs.) 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 5 5 25°C 1.0000 (nD-d/2)u. 1.0182 30 mm 1.0000 Dispersion 0.9602 0.9487 Dielectric BP 5 Flash Point °C te 80 to 6.9249 Fire Point ťc 1430.0 1200 °C M Spec. Ultra V. 5 C AHc kcal/m 212. ΔHf A\* 80 to 1.3204 5 X-Ray Dif. ΔFf B\* 170 °C 1338.3 Infrared ĸ Viscosity Solubility in centistokes Acetone t<sub>x</sub> | to Carbon tet. •c Benzene A'I 25 to 7.2681 5 Ether B١ \_80 °C 1615.9 5 n-Heptane 5 229. to Ethanol •c Water A1# 25 to 1.6587 5 Water in B'\* 80 °C (BV) 1517. to Ac | 200 to 7.3425 5  $(A^{V})_{I}$ °C Bc tc\_C 1797.9 cp liq. ۰ĸ Cc 262. Cryos. A\* c<sub>p</sub> vap. ۰ĸ consts. B° c, vap. f .C 157.59  $T_{\mathbf{R}} = 0.75 \, T_{\mathbf{c}}$ # C-S-C, S =7.2 grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API **PURIFICATION:** API LITERATURE REFERENCES:

NAME	2,4-Dimethylthiophene							STRUCTURAL FORMULA				
								н <sub>3</sub> сс — сн				
Mole		Ref.	Mol	ecul		Molecular		HC S CCH3				
% Pur.	_		FOI	mula Ref.		Veight 112.1	Ref.	<del></del>	Ref.			
F. P. *C	Т			ICI.	dt/dP		1	,				
F.P. 1009	6				*C/mm			f to g*K	i i			
B. P. *C	1				25°C	2, 2627	5	h i	1 1			
760 mm	-	140.7		2	BP t <sub>e</sub>	0.0490 0.0365	5	f' to				
100 30	1	78.5 50.9	6	5	30 mm	0.6900	5	g' <u>*K</u>				
10	-	29.9	•	5	ΔHm cal/g	,		h'				
1	+	-5.3		5	ΔHv cal/g		$\vdash$	m to				
Pressure mm 25°C	. 1	7.5	284	5	25°C	92.46	5	n   •K				
t <sub>e</sub>		1108.2		5	30 mm BP	89.91 76.44	5					
Density	_				t <sub>e</sub>	74.41	5	m' to				
g/ml 20°0		0.9° 0.9°		2 2	t <sub>e</sub> (d, e)	74.24	5	",				
d <sub>4</sub> 25	-	0.9		4	ΔHv/T <sub>e</sub>	19.48	5	6 6 4 4 - 1 -				
	$\top$	1.0	160	4	d 50 to	97.56	5	Surface tension dynes/cm, 20°C	32.33 5			
ь	_	-0.0	2102	4	-6 - 155 °C	0.1501 94.91	5	30	31.02 5			
Ref. Inde				_	e' 50 °C	0.0982	5		29. 76 5			
n <sub>D</sub> 20°	١,	1.5 1.5		2 2	d <sub>c</sub> g/ml			Parachor [P] 20°C				
30		1.5		4	v ml/g	358.	5	30				
"C"		0.6	736	4	tc *C Pc mm	30110.	5	40 Sugd. 20	68.7 5			
MR (Obs.		33.7		2	PV/RT		<u> </u>	Exp. L. l. %/wt.				
MR (Calc   (nD-d/2)	۱۲۰	33.9° 1.0		5 2	25°C	1.0000	5	u.				
Dielectric	+			-	30 mm BP	1.0000 0.9419	5	Dispersion				
A   50 to	-	6.9	030	5	t_	0.9295	5	Flash Point *C Fire Point				
B   220 °C		1450.7	737	5	te			<b></b>				
_ c	_	212.0		5	ΔHc kcal/m			M. Spec. Ultra V.	Ì			
A* 50 to B* 165 °C			2330	5	ΔFf			X-Ray Dif.				
K	-	1367.9	U	]	Viscosity			Infrared				
t,t	-1				centistokes			Solubility in Acetone				
					7			Carbon tet.				
A'   25 to	•	7.3	415	5				Benzene Ether	1			
B' _50 °	드	1639.2 229.		5	PV .	<u> </u>	+	n-Heptane	1			
A'* 25 to	$\dashv$		216	5	B <sup>V</sup> to A <sup>V</sup>   *C			Ethanol Water				
B'+ 50 *	c	1540.3	316	5	(B <sup>V</sup> )  to			Water in				
Ac  220 to			100	5	(A <sup>V</sup> )  °C		-					
Bc tc	듸	1814. 261.		5	c <sub>p</sub> liq. °K			1				
Cc	.	201.		1	11		1					
Cryos, A consts. B					c <sub>p</sub> vap. *K							
te °C		155.3	3	5	c <sub>v</sub> vap.							
$T_{\mathbf{R}} = 0$ .	75 '	r <sub>c</sub>			# C-S-C, S = 7	. 2		grams/100 grams	solvent			
	ICE	:S: 1-I	)ow			Calc, from d	et. de	ata 5-Calc. by formu	ila			
SOURCE:				AF								
PURIFICA				AF								
LITERAT	UR	E REF	ERE	NCE	S:							
1												

No. 8 NAME 2,5-Dimethylthiophene STRUCTURAL FORMULA -CH ∖s∕ссн₃ Molecular C6H8S H3CC Ref. Molecular Mole Weight 112, 190 % Pur Formula Ref. Ref Ref. F.P. \*C F.P. 100% -62.6 2 dt/dP f to °C/mm <u>•K</u> g 25°C 1.8690 B. P. °C h 0.0490 BP 5 760 mm 136.7 2 5 ſ 0.0361 to 100 74.6 5 g¹ °K 30 47.14 5 30 mm 0.6872 5 10 26.2 h' AHm cal/g -8.8 5 1 to ΔHv cal/g Pressure n •K 90.25 25°C 9.3366 mm 25°C 5 o 30 mm 88.16 5 1121.8 te BP 76.38 5 m' to Density g/ml 20°C te (d, e) 74.45 5 •ĸ 0.9850 n' 2 5 74.39 o'  $\mathbf{d_4^t}$ 25 0.9799 2 ΔHv/T 19.65 5 30 0.9748 4 Surface tension d 94.36 5 50 to 1.0054 dynes/cm. 20°C 36.97 <u>с</u> 0.1315 Ъ -0.00102 30 29.71 28.42 5 5 a٠ to 92.62 25 40 Ref. Index 50 0.0946 20°C 1.5129  $\mathbf{n}_{\mathbf{D}}$ Parachor [P] d g/1 v ml tc °C g/ml 25 1.5104 2 20°C ml/g 30 1.5072 4 30 352. 5 40 "C" 0.6839 4  $P_c$  mm 29180. 5 Sugd. 268.7 5 MR (Obs.) 34.23 2 PV/RT Exp. L. 1. %/wt. MR (Calc.) 33, 974 1.0000 25°C 5 (nD-d/2)1.0204 2 30 mm 1.0000 Dispersion 2 162 0.9597 Dielectric BP Flash Point °C 0.9487 t<sub>e</sub> A 50 to 6.9611 5 Fire Point B 1195 °C 1427.7 M Spec. C 213.2 5 AHc kcal/m Ultra V. ΔHf 1.3621 A\* 50 to X-Ray Dif. ΔFf B\* 1160 °C 1337.0 Infrared Viscosity Solubility in centistokes c Acetone to Carbon tet. •c Benzene A' 25 to 7.3066 Ether B' <u>50 °C</u> 1613.3 n-Heptane B<sup>V</sup> | C' 230. 5 to Ethanol •c Water A1# 25 to 1.6984 Water in (BV) B'\* 50 °C 1514.3 to Ac | 195 to 7.3785 (AV) 5 °C Bc t<sub>c</sub> C 1789.6 cp liq. ۰ĸ 262. Cryos. A\* c<sub>p</sub> vap. •ĸ consts. B° **1.** ℃ c, vap. 151.83 5  $T_R = 0.75 T_c$ # C-S-C, S = 7.2 grams/100 grams solvent REFERENCES: 1-Dow 2-API 4-Calc. from det. data 5-Calc. by formula 3-Lit. SOURCE: API API **PURIFICATION:** LITERATURE REFERENCES:

NAME		3, 4-	Dime	thylt	hiophene		STRUCTURAL FORMULA					
								н <sub>3</sub> сс — сс	Н3			
Mole % Pur.		Ref.	Mol For	ecula		Molecular Veight 112,19	0	н'С <sub>s</sub> Сн	1			
				Ref.			Ref.			Ref.		
F.P. °C F.P. 100°	6				dt/dP °C/mm			f to				
B. P. °C 760 mm 100 30 10		145. 81. 53.3	8	2 5 5 5	25°C BP te 30 mm	2.5399 0.0502 0.0371 0.7021	5 5 5	h   to g'   *K				
Pressure mm 25°C	- 1	-4. 6.7 117.5	05	5 5 5	ΔHv cal/g 25°C 30 mm BP	92.48 89.69 75.98	5 5	m to				
Density g/ml 20°6 d <sup>t</sup> 25 4 30	s	1.0 1.0 0.9	03	2 2 4	te (d, e)  ΔHv/Te	73.88 73.68 19.12	5 5	n' o' K				
b	_	1.0 -0.0		4	d 55 to e 60 °C d 25 to	97.68 0.1497 94.94	5 5 5	dynes/cm. 20°C 30 40	33.97 32.72	5 5 5		
Ref. Inde: n <sub>D</sub> 20° 25 30		1.5 1.5 1.5	187	2 2 4	e' 55 °C  dcg/ml vcml/g tc°C	0,0983	5	Parachor [P] 20°C 30	31.36	-		
"C"		0.6	785	4	tc *C Pc mm	29310.	5	40 Sugd.	268.7	5		
MR (Obs. MR (Calc (nD-d/2)	)	33.9 33.9 1.0		2 5 2	PV/RT 25°C 30 mm	1.0000	5	Exp. L.1.%/wt. u. Dispersion	156.	2		
Dielectric	,	6.9 446.7	389	5	BP t e t c	0.9590 0.9265	5	Flash Point *C Fire Point M. Spec.				
A* 55 to B* 170 °C		1.3 363.9	675	5 5 5	ΔHc kcal/m ΔHf ΔFf			Ultra V. X-Ray Dif. Infrared				
K c t <sub>k</sub> to	7				Viscosity centistokes $\eta$ °C			Solubility in + Acetone Carbon tet. Benzene				
A'   25 to B'   55 'C' C'	_ 1	7. 2 634. 7 228.	7182	5 5 5	B <sup>V</sup> to A <sup>V</sup> •C			Ether n-Heptane Ethanol Water				
B'* 55 °C	5 1	535, 5 7, 3	562	5	(B <sup>V</sup> )  to (A <sup>V</sup> )  °C			Water in		+		
Bc tc	$\perp$	817.0 262.		5	c <sub>p</sub> liq. °K							
Cryos. A consts. B		140.2			c <sub>p</sub> vap. *K							
$t_e ^{\circ}C$ $T_R = 0.$	75 T	160.3	<u>-</u>	5	l <u> </u>			+ grame/100 ===	me coluc	<u></u>		
			)ow		# C-S-C, S = 7		et d	grams/100 gra ata 5-Calc. by for		116		
SOURCE:	U EX	,, 1-L	, U W		PI 3-LR. 4-	110III d	u					
PURIFICA	TIO	N:			.PI					-		
LITERAT			ERE									

No. 10 STRUCTURAL FORMULA NAME 2-Propyltniophene CH CC3H7 HC. Molecular C7H10S Ref. Molecular Mole Weight 126, 216 % Pur. Formula Ref. Ref Ref. F.P. °C F.P. 100% dt/dP to °C/mm <u>•</u>K\_ g 25°C 4. 2441 5 B. P. °C h 0.0520 ВP 158.5 760 mm 2 ſ١ 0.0368 5 to 100 92.7 g' •ĸ 30 63.72 5 30 mm 0.7254 5 10 41.6 5 h' AHm cal/g 4.8 5 to m AHv cal/g Pressure •K n 25°C 85.69 3.849 mm 25°C o 30 mm 5 82.12 1182.8 5 te BP 70.79 5 m to Density g/ml 20°C 68.67 5 te (d, e) •ĸ 0.9687 2 5 68,60 o' 25 0.9639 2 AHV/T ď4 19.26 5 30 0.9591 4 1 65 1 175 Surface tension d 89.74 5 to 0.9879 a b dynes/cm. 20°C 31.22 0.1195 <u>•с</u> 5 -0.0396 4 30.00 28.81 5 ð٠ 30 87.99 75 to 5 40 Ref. Index 65 0.0922 5 20°C 1.5049 **n**D  $\overline{P}$ Parachor d g/ml vc ml/g tc °C 25 1.5023 2 20°C 30 1.4995 4 30 371. 5 40 "C" 0.6855 4 P<sub>c</sub> mm 24502. 5 307.7 5 Sugd. MR (Obs.) 38.639 2 PV/RT Exp. L.1.%/wt. 38. 292# MR (Calc.) 25°C 1.0000 (nD-d/2) 1.0206 2 u. 30 mm 1.0000 Dispersion 149. 2 Dielectric BP 0.9577 5 Flash Point °C 0.9446 t<sub>e</sub> A 65 to 6.9194 Fire Point B 1210 °C 1484.2 M Spec. Ultra V. C 209. 5 ΔHc kcal/m ΔHf A\* 65 to 1.3536 5 X-Ray Dif. ΔFf B+ 185 ℃ 1390.2 Infrared Viscosity Solubility in centistokes Acetone Carbon tet. \*C Benzene 25 to 7.2623 Ether B' <u>65 ℃</u> 1677.10 n-Heptane B<sup>V</sup> | 226. to Ethanol •c Water A1# 25 to 1.6970 5 Water in B'\* 65 °C (BV) 1577.4 to Ac | 210 to 7.3325 (A<sup>V</sup>) °C Bc tc C 1850.4 cp liq. ۰ĸ Cc 258. Cryos. A\* •ĸ cp vap. consts. B° c, vap. t° .C 176.86 5  $T_R = 0.75 T_c$ # C-S-C, S = 7.2 grams/100 grams solvent REFERENCES: 1-Dow 2-API 3 - Lit. 4-Calc, from det. data 5-Calc, by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

NAME	3-P1	ropyl	thiop	hene			STRUCTURAL.	NO. 1	
NAME		. ор,.				$\dashv$	STRUCTURAL		,A
							нс —— с II II	C <sub>3</sub> H <sub>7</sub>	
1	-	١					нё "ö		
Mole % Pur.	Ref.	Mo	mula		Molecular Veight 126.21	6	`s/		
			Ref.		1	Ref.	<del> </del>		Ref.
- n n	T		I Ker		<del> </del>	Ker.			1
F.P. °C F.P. 100%			-	dt/dP *C/mm			f to		
B. P. *C	+		$\vdash$	25°C	4. 675	5			İ
760 mm	161.		2	BP	0.05233	5	h		+-
100	95.		5	t <sub>e</sub>	0.03711	5	f to		1
30 10	65.64 43.	•	5	30 mm	0.7296	5	h'		1
i	6.		5	∆Hm cal/g		L	<u> </u>		┼
Pressure	1			ΔHv cal/g			m to		1
mm 25°C	3.40	570	5	25°C 30 mm	86.38 82.59	5	<del>-</del> -		1
t <sub>e</sub>	1151.0	3	5	BP	70.71	5			$\vdash$
Density				t <sub>e</sub>	68.53	5	m' to to		
g/ml 20°C	0.9		2 2	t <sub>e</sub> (d, e)	68.42	5	i,		1
dt 25 4 30	0.90		4	AHv/T <sub>e</sub>	19.11	5	I		╁
a	0.99		4	d 65 to	90.76	5	Surface tension dynes/cm. 20°C	31.60	5
ь	-0. ó		4	180 °C	0.1246 88.72	5	8 30	30.39	5
Ref. Index				e' 65 °C	0.0934	5	40	29.22	5
n <sub>D</sub> 20°C			2	d <sub>c</sub> g/ml	1,1,1		Parachor [P]		
25	1.50		2 4	v mi/g			20°C 30		
"C"	+		+	vc ml/g tc °C	375.0	5	40		İ
	0,6		4	P <sub>c</sub> mm	24530.	5	Sugd.	307.7	5
MR (Obs.) MR (Calc.			2 5	PV/RT			Exp. L.1.%/wt.		
(nD-d/2)	1.0		2	25°C	1.0000	5	u.		1_
Dielectric	<del> </del>		<del>                                     </del>	30 mm BP	1.0000 0.9517	5	Dispersion	148.	2
A 65 to	6.9	146	5	t <sub>e</sub>	0.9379	5	Flash Point C Fire Point		
B   210 °C			5	tč			<b></b>		+
С	208.4		5	AHc kcal/m			M. Spec. Ultra V.		
A* 65 to	1.3	572	5	ΔHf ΔFf		l	X-Ray Dif.		
B*[190 °C	- 1398.7		5	Viscosity	<del> </del>	<del>                                     </del>	Infrared		↓
c			ł	centistokes		•	Solubility in +		1
t <sub>k</sub> to			i	η •c			Acetone Carbon tet.		
t <sub>x</sub> °C							Benzene		
A'  25 to		572	5			1	Ether		
B' 1_65°C	- 226.		5	B <sup>V</sup> to C			n-Heptane Ethanol		
A1# 25 to		911	5	A <sup>V</sup> I °C			Water		
B'* 65 °C		, <b></b>	5	(B <sup>V</sup> )  to	1	ì	Water in		
Acl 210 to	7.3	274	5	(A <sup>V</sup> )  °C			1		
Bc tc C	1858.3		5	c liq. °K	1	$t^-$	1	}	1
Ce	258.		5	lT .	1				1
Cryos. A° consts. B°			į	c <sub>p</sub> vap. *K					
t <sub>e</sub> °C	179.4	1	5	c <sub>v</sub> vap.					
$T_R = 0.7$	5 T <sub>c</sub>			# C-S-C, S = 7	. 2		grams/100 gra	ms solve	nt
REFEREN	CES: 1-I	Dow .	2-A	PI 3-Lit. 4-	Calc. from de	t. da	ta 5-Calc, by for	mula	
SOURCE:			AF	PI					
PURIFICA	TION:		AF	PI					
LITERATU		ERE	NCE	5:				712	
1									

No. 12 STRUCTURAL FORMULA NAME 2-Isopropylthiophene CH `s∕<sup>©C3H7</sup> Molecular C7H10S Molecular Ref. Mole % Pur Formula Weight 126, 216 Ref Ref. F.P. °C F.P. 100% dt/dP f to \*C/mm 25\*C °K g ·5 3,432 B. P. °C h BP 0.05130 760 mm 5 153. 2 ſ 0.0360 5 to 100 88. 5 g¹ °K 30 59.46 5 30 mm 0.7161 5 10 38. 5 þ, AHm cal/g 5 1 1. to AHv cal/g Pressure n •K 84.21 81.10 25°C 5 4.844 mm 25°C 0 30 mm t<sub>e</sub> 1191.0 5 71.10 5 **5** BP m¹ to Density g/ml 20°C te (d, e) 69.29 •ĸ n' 0.9678 2 69.21 5 o' dt4 25 0.9633 19.70 5 AHV/T 30 0.9588 4 Surface tension 60 87.45 d to •C 5 0.9858 -0.0390 dynes/cm. 20°C 31,11 170 0.1069 5 Ъ 4 30 5 29.97 28.85 ar to 86.4 40 Ref. Index 60 0.09 5 20°C 1.5038 [P]  $\mathbf{n}_{\mathbf{D}}$ Parachor d v t c g/ml 25 1.5013 2 20°C ml/g 1.4988 30 4 30 •c 364. 5 40 "C" 0.6846 4 P<sub>c</sub> mm 25000. 5 Sugd. 307.7 5 MR (Obs.) 38.61 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 38.292# 25°C 1.0000 5 (D-d/2) 1.0199 30 mm 1.0000 Dispersion 150. 2 Dielectric BP 0.9590 Flash Point °C 0.9467 A 60 to te 6.9243 5 Fire Point B 1205 °C 1467.8 M Spec. C 210, ΔHc kcal/m Ultra V. ΔHf 1.3607 A\* 60 to X-Ray Dif. ΔFſ B\* 180 °C 1374.0 Infrared Viscosity Solubility in centistokes c Acetone to Carbon tet. •c Benzene A' | 25 to 7.2675 Ether B١ \_60 °C 1658.57 n-Heptane B<sup>V</sup> | C' 227. Ethanol to •c Water AI+ 1.70438 25 to Water in (BV) B'\* 60 °C 1559.10 to Ac | 205 to 7.3595 5 (AV) •c Bc tc C 1851. cp liq. •ĸ 261 Cryos, A° c<sub>p</sub> vap. •ĸ consts. B. te °C c, vap. 170.6 5  $T_R = 0.75 T_c$ C-S-C, S = 7.2 4 grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

NAME		3-Iso	DFOD	vlthi	ophene		No. 13						
NAME			FF	,				HC — CC3H7					
ļl		<del></del> -						#C—	-003H7 				
Mole		Ref.	Mol	ecul	ar	Molecular		HC_s	_CH				
% Pur.			For	mula		Weight 126.21	6	3					
				Ref.			Ref.			Ref.			
F, P. *C					dt/dP			f	to				
F.P. 100	6				°C/mm		-	g   ' '	<u>'κ</u>				
B. P. °C					25°C BP	3.9952 0.05184	5	h					
760 mm	1	157. 91.		2 5	te	0.0366	5		to				
30	ı	62.51		5	30 mm	0.7230	5	8' '	<u>K</u>				
10		41.		5	ΔHm cal/g			h'					
	+	4.		-	ΔHv cal/g				to				
Pressure mm 25°C		4, 11	05	5	25°C	85.25	5	"   '	<u>K</u>				
te		169.0		5	30 mm BP	81.81 71.06	5	<b>  </b>					
Density	T				l t_	68.99	5		to K				
g/ml 20°0		0.97		2 2	t (d, e)	68.95	5	;;	-~	1			
dt 25		0.96 0.96		4	ΔHv/T <sub>e</sub>	19.40	5			├			
	$\top$	0.99		4	d 65 to	88.92	5	Surface tension dynes/cm. 20°		5			
ь		-0.03		4	175 °C	0.1137 87.54	5	¥ 30	30.66	5			
Ref. Inde					e'   65 °C	0.0918	5	40	29.52	5			
n <sub>D</sub> 20°0	C	1.50		2 2	d <sub>c</sub> g/ml			Parachor [P]		1			
30		1.50		4	V mi/g	271.0	١.	30		1			
"C"		0.68	25	4		371.0	5	40		۱.			
MR (Obs.	<u>,                                    </u>	38,48		2	P <sub>c</sub> mm	25050.	5	Su		5			
MR (Calc.		38, 29	2#	5	PV/RT 25°C	1.0000	5	Exp. L.1.%/w	rt.				
(nD-d/2)	4	1.01	86	2	30 mm	1.0000	5	Dispersion	145.	2			
Dielectric	-				BP	0.9650 0.9528	5	Flash Point *C	=				
A 65 to		6.91 178.2	74	5	t e t c	0.7528		Fire Point		<u> </u>			
c '=		209.2		5	ΔHc kcal/m	<b>†</b>	_	M. Spec.					
A+ 65 to		1.34	01	5	ΔHf	-		Ultra V. X-Ray Dif.	·				
B*[185 °C	<u>:  </u> 13	381.1		5	ΔFf	ļ		Infrared					
K c					Viscosity centistokes			Solubility in	+				
t <sub>k</sub>  tc					η ·c			Acetone Carbon tet.					
, x								Benzene		1			
A'   25 to B'   65 °C		7, 26 670, 3	01	5			<u> </u>	Ether n-Heptane		1			
c,'-°- 3		226.		5	B <sup>V</sup> to A <sup>V</sup> C			Ethanol					
A'* 25 to	,	1.69	56	5				Water		1			
B** . 65 *(	-	570.7		5	(B <sup>V</sup> )  to	1		Water in		+-			
Ac 210 to		7.33 345.	10	5	(A <sup>V</sup> )  °C		L	1	1				
Bc tc C	- 13	345. 258.		5	c <sub>p</sub> liq. *K		1	1		ł			
Cryos. A					c <sub>p</sub> vap. *K								
consts. B					li .		1						
te °C	$\top$	175.55		5	c <sub>v</sub> vap.	ļ							
$T_{\mathbf{R}} = 0.7$	75 T,	<u> </u>			# C-S-C, S = 7	. 2		grams/100	grams solven	ıt			
REFEREN	CES	3: 1-E	)ow	2-A	PI 3-Lit. 4-	Calc. from de	t. da	ata 5-Calc. by					
SOURCE:				A	PI								
PURIFICA	TIO	N:		A	PI								
LITERAT			ERE	NCE	S:				<del></del>				
1													

STRUCTURAL FORMULA 2-Ethyl-3-methylthiophene NAME -ссн3 HC 5 CC2 H5 Molecular C7H10S Ref. Molecula r Mole Formula Weight 126.216 % Pur Ref. Ref Re! F. P. \*C dt/dP ſ to F.P. 100% °C/mm g ≗K. 25°C 4.7190 B. P. \*C h BP 0.05224 5 760 mm 161. 2 5 f 0.3682 to t<sub>e</sub> 100 95. 65.79 5 g' •ĸ 30 30 mm 0.7286 5 10 44. 5 h' ∆Hm cal/g 7. 5 to m ΔHv cal/g Pressure •ĸ 5 n 25°C 86.63 mm 25°C 3.4246 o 82.77 5 30 mm 1190.6 5 t<sub>e</sub> ВP 71.31 5 1 to Density g/ml 20°C 69.14 5 te (d, e) n' •ĸ 0.9815 5 69.06 ٥' 0.9769 25 dt4 2 ΔHv/Te 19.27 5 30 0.9723 4 √,5 Surface tension Т 90.69 d 5 to 0.9999 4 32.91 dynes/cm. 20°C 5 180 1 •<u>c</u> 0.1204 5 -0.0392 ь 4 30 31.69 5 ď۰ 25 to 88.996 1 40 30.50 5 Ref. Index ٠c e' 65 0.0946 5 20°C [P] n<sub>D</sub> 1.5105 2 Parachor d<sub>c</sub> g/ml 25 1.5080 2 20°C ml/g t<sub>c</sub> 30 1.5053 4 30 ·c 377. 5 40 "C" 0.6834 4 P<sub>c</sub> mm 25200. 5 Sugd. 307.7 5 MR (Obs.) 38.49 38.292# 2 PV/RT Exp. L. 1. %/wt. MR (Calc.) 25°C 1,0000 5 (nD-d/2) 1,0198 2 u. 30 mm 1.0000 Dispersion Dielectric RP 0.9580 5 Flash Point °C t<sub>e</sub> 0.9448 5 65 to Fire Point 6.9171 1489.4 [210 °C t<sub>c</sub> В M Spec. C 208. 5 AHc kcal/m Ultra V ΔHf A\*| 65 to B\* 190 °C 1.3488 5 X-Ray Dif. ΔFf 1395.1 Infrared ĸ Viscosity Solubility in c centistokes Acetone to t<sub>x</sub> Carbon tet. •c Benzene 25 to 7.2598 5 Ether B١ 1683. 5 65 °C n-Heptane вv C١ 225. 5 Ethanol ĀV I °C Water A1\* 25 to 1.6942 5 Water in B'\* 65 °C 5 (BV) 1583,6 to Ac | 210 to 7.3298 5 (A<sup>V</sup>) °C Bc tc C 1858.7 cp liq. ۰ĸ Сc 257. Cryos. A\* c<sub>p</sub> vap. •ĸ consts. B° c, vap. te °C 179.73 5  $T_R = 0.75 T_c$ # C-S-C, S = 7.2 grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API API PURIFICATION: LITERATURE REFERENCES:

								No. 15			
NAME	3-Etl	1yl-2-	met	hylthiophene			STRUCTURAL FORMULA				
							нс — с с г	Hs			
·						$\dashv$	11 11				
Mole	Ref.	Mole	ecula	C7H10S	Molecular		нс ссн	-3			
% Pur.	İ	For	mula	C7 <sup>H</sup> 10 <sup>S</sup> V	Weight 126.21	16	3				
			Ref		T	Ref.		Ref.			
F. P. °C	T			dt/dP			f to				
F. P. 100%	<del>                                     </del>		$\neg$	°C/mm			f to g - *K	1			
B. P. °C	<del>                                     </del>			25°C	3.9952	5					
760 mm	157.	1	2	BP	0.05184	5	h				
100	91.	- 1	5	t <sub>e</sub>	0.03696	5	f' to				
30	62.5	ı	5	30 mm	0.7230	5	g' ' <u>K</u>	i l			
10	41.		5	ΔHm cal/g			h'				
1	4.		5	ΔHv cal/g		$\vdash$	m to				
Pressure	1		_	25°C	85, 25	5	n   •K				
mm 25°C	4.1		5	30 mm	81.81	5	0				
tete	1172.78	•	긔	<b>B</b> P	70.54	5	m' l to				
Density		- 1	1	te , , ,	68.40	5	n' K				
g/ml 20°C			ļ	te (d, e)	70.70	5	0'	1			
dt 25			l	ΔHv/T <sub>e</sub>	1	L					
a	+			d 60 to	89.26	5	Surface tension	1			
b			- 1	_e_ _175 °C	0.1192	5	dynes/cm. 20°C	1			
Ref. Index	+		$\dashv$	d' 25 to	87.55 0.09186	5	40				
2000				<u> </u>	0.09186	-	Parachor [P]				
<sup>n</sup> D 25		- 1	1	d <sub>c</sub> g/ml			20°C				
30		i	ļ	vc ml/g t °C			30				
"C"						ļ	40				
MR (Obs.)	+		$\dashv$	P <sub>c</sub> mm		ļ		07.7 5			
MR (Calc.		92#	5	PV/RT		_	Exp. L. 1. %/wt.	ļ			
(nD-d/2)	1			25°C 30 mm	1.0000	5	u.				
Dielectric	<b>†</b>			BP	1.0000 0.9538	5	Dispersion				
A 60 to	6.9	174	5	te	0.9406	5	Flash Point *C Fire Point				
B   190 °C		• • •	5	tc			<b></b>				
c '	209.2		5	AHc kcal/m	1	1	M. Spec.				
A* 60 to	1,3	598	5	ΔHí			Ultra V. X-Ray Dif.				
B*  185 °C			5	ΔFf	ļ	<u> </u>	Infrared				
к	- I	1		Viscosity		1	Solubility in +				
t, to	-			centistokes n °C			Acetone				
		l		ŋ °C	1		Carbon tet.	1			
X		(0)	-				Benzene	1			
A'   25 to B'   60 °C		901	5		L		Ether n-Heptane				
c,'-°= =	226.3	1	5	B <sup>V</sup> to			Ethanol				
A** 25 to	+	956	5	B <sup>V</sup> to A <sup>V</sup> C			Water				
B'* 60 °C		, , ,	5	(B <sup>V</sup> )  to		1	Water in				
Acl to				(A <sup>V</sup> )  °C		1					
Bc tc C					<u> </u>	+-	1	1			
Cc	-			c <sub>p</sub> liq. *K		1					
Cryos. A°	1			c <sub>p</sub> vap. *K	1	1		l			
consts. B				Р.	1			ĺ			
t <sub>e</sub> °C	174.9	3	5	c <sub>v</sub> vap.	1	1	1	1			
# C-S-C,	1			ш			grams/100 gram	s solvent			
			2 4	DT 2 T 24 4	Cala farm 3						
	CES: 1-1	DOW			Caic. Irom de	e. a	ata 5-Calc. by form				
SOURCE:			AF								
PURIFICA	TION:		AF	PI							
LITERATU	RE REF	ERE	NCE	S:							
1											
1											
1											
1											

No. 16 4-Ethyl-2-methylthiophene STRUCTURAL FORMULA NAME H5 C2C \s\_CCH3 Molecular C7H10S Mole Ref. Molecular Weight 126, 216 % Pur Ref. Ref Ref. -59. 2 dt/dP to F. P. 100% °C/mm •ĸ g 25°C 5 5.0237 B. P. °C h BP 0.05265 5 760 mm 163. 2 t<sub>e</sub> 5 0.0369 ſ١ to 100 96. 5 g¹ <u>•</u>K 67,10 5 30 30 mm 0.7334 5 45. 5 10 h' ΔHm cal/g 8. to m AHv cal/g Pressure •ĸ 25°C 30 mm n 86.83 mm 25°C 3.209 5 ٥ 82.87 5 t<sub>e</sub> 1198.1 5 ВP 71.48 5 Density m' to 69.28 te te (d, e) g/ml 20°C •ĸ 0.9742 5 69.21 0.9696 dt4 AHV/Te 19.20 5 0.9650 4 Surface tension 90.83 65 to 5 0.9926 dynes/cm. 20°C 31.94 185 •c 0.1187 5 -0.0392 4 30.75 Ъ 5 30 to 89.18 1 25 5 29.59 40 e' Ref. Index •c 0.0942 65 20°C 1.5098 (P) 2  $\mathbf{n}_{\mathbf{D}}$ Parachor d g/ml v ml/g t C C 25 1.5073 2 20°C 30 1.5046 4 30 379. 5 40 "C" 0.6876 4 P<sub>c</sub> mm 24750.1 5 307.7 5 Sugd. MR (Obs.) 38.74 38.272# 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 25°C 1.0000 5 (nD-d/2) u. 1.0227 30 mm 1.0000 Dispersion 0.9590 Dielectric BP Flash Point °C 0.9457 t<sub>e</sub> A 65 to Fire Point 6.9072 tç 1493.8 1510 € M Spec. Ultra V. C 5 AHc kcal/m 208 ΔHſ A\* 65 to 1.3348 5 X-Ray Dif. ΔFf B\* 195 °C 1398.4 Infrared ĸ Viscosity Solubility in c centistokes Acetone Carbon tet. •c Benzene 25 to 7, 2493 Ether \_ 65 °C 1685. 5 n-Heptane  $\mathbf{B}^{\vec{\mathbf{v}}}$ C' 225. 5 Ethanol  $\bar{\mathbf{A}}^{\mathbf{V}}$ •c Water A'\* 25 to B'\* 65 °C 1.6826 5 Water in (BV) 1588.2 5 to Ac | 210 to 7.3203 5 (AV) °C Bc tc C 1864.9 cp liq. ۰ĸ 258. Cryos. A\* cp vap. •ĸ consts. B° c<sub>v</sub> vap. te °C 182.16 5  $T_{R} = 0.75 T_{c}$ # C-S-C, S = 7.2 grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

NAME		5-Eth	y1-2	-met	hylthiophene		STRUCTURAL FORMULA				
								н <b>с</b> — сн 			
Mole % Pur.		Ref.	Mol For	ecula mula		Molecular Weight 126.21	6	H <sub>5</sub> C <sub>2</sub> C S CC	13		
				Ref.			Ref.		Ref		
F.P. °C F.P. 100		-68.5	-	2	dt/dP °C/mm			f to			
B. P. °C 760 mm		160.1		2	25°C BP t <sub>e</sub>	4.5061 0.05224 0.03685		h   to			
100 30		94. 02 64. 92		5	30 mm	0.7282	5	g' <u>*K</u>			
10		42.8		5	ΔHm cal/g			h¹			
Pressure mm 25°C		3.60 189.6	78	5	ΔHv cal/g 25°C 30 mm BP	86.12 82.39 71.09	5 5 5	m to			
Density g/ml 20° dt 25 4 30	С	0. 96 0. 96 0. 95	18	2 2 4	te te (d, e) AHv/Te	68. 94 68. 87 19. 25	5 5	m' to			
a b		0.98 -0.0 <sub>3</sub>	33	4 4	d 65 to e 180 °C d' 25 to	90.10 0.1188 88.45	5 5 5	<b>8</b> 30	30.89 5 29.80 5 28.74 5		
Ref. Inde n <sub>D</sub> 20° 25 30		1.50 1.50 1.50	48	2 2 4	d <sub>c</sub> g/ml v <sub>c</sub> ml/g t <sub>c</sub> °C	0.09326 0.3104 3.222	5 5	Parachor [P] 20°C 30	20.14		
"C"	T	0.69	03	4	•	375.00	5	40 Sund 3	07.7 5		
MR (Obs. MR (Calc (nD-d/2)		38.90 38.24 1.02	2#	2 5 2	P <sub>c</sub> mm PV/RT 25°C	1.0000	5	Exp. L.1.%/wt.	07.7 5		
Dielectri	: 🕇			$\vdash$	30 mm BP	1.0000 0.9590	5	Dispersion			
A 65 to	2_1	6.91 486.2	28	5 5	t e t c	0.9460	5	Flash Point C Fire Point  M. Spec.			
C A* 65 to B* 190 *	,	1.34 391.4	32	5 5 5	ΔHc kcal/m ΔHf ΔFf			Ultra V. X-Ray Dif. Infrared			
					Viscosity centistokes 7°C			Solubility in Acetone Carbon tet. Benzene			
A'   25 t B'   65 ' C'	<u> </u>	7, 25 679, <b>4</b> 225, 7	52	<b>5</b> 5	B <sup>V</sup> to A <sup>V</sup>   *C			Ether n-Heptane Ethanol			
A1# 25 t B1# 65	C 1	1.68 579.8	97	5 5	(B <sup>V</sup> )  to	-		Water in			
Ac 210 t Bc t <sub>c</sub> Cc	C   1	7, 32 854, 8 258,	60	5 5 5	(A <sup>V</sup> )  °C c <sub>p</sub> liq. °K						
Cryos. A consts. E					c <sub>p</sub> vap. *K						
t <sub>e</sub> °C		178.79		5	c <sub>v</sub> vap.						
$T_{\mathbf{R}} = 0.$					# C-S-C, S = 7			† grams/100 grams			
	CE	5: 1-E	)ow			Calc, from de	t. da	ata 5-Calc, by form	ıla		
SOURCE:				AP							
PURIFICA				AP							
LITERAT	URE	, KEF.	ere	NCES	<b>:</b> :						

No. 18 STRUCTURAL FORMULA NAME 2, 3, 4-Trimethylthiophene нзсс--ссзн нё́~s∕ . Ссн<sub>3</sub> Ref. Molecular C7H10S Molecular Mole Weight 126, 216 % Pur Ref. Ref. Ref dt/dP f to F.P. 100% \*C/mm g <u>•</u>K 25°C 7.2632 5 B. P. °C h ΒP 0.054 760 mm 172.7 2 0.0373 5 ſ 100 104.5 5 to g' ۰ĸ 30 74.45 5 30 mm 0.7506 5 10 51.6 5 h! AHm cal/g 13.5 to AHv cal/g m Pressure •ĸ n 25°C 89.33 mm 25°C 2.1577 o 30 mm 84.50 5 1221,92 5 t<sub>e</sub> ВP 72.61 5 Density g/ml 20°C to m 5 te te (d, e) 70.24 ٠ĸ 0.995 0.991 'n 70.12 0 2 25 30 ΔHv/Te d4 5 19.01 0.987 4 Surface tension 75 93.52 to 1.0101 0.0380 44 dynes/cm. 20°C •c 5 0.1211 91.78 h 30 33.65 32.57 5 to C 25 40 e' Ref. Index 75 0.0977 20°C 1.5208 2 Parachor [P]  $\mathbf{n}_{\mathbf{D}}$ d<sub>c</sub> g/ml 25 1.5183 2 20°C vc ml/g 30 1.5164 4 30 400. 5 40 "C" 0.6869 4 P<sub>c</sub>\_mm 25806. 5 307.7 5 Sugd. MR (Obs.) 38.6 2 PV/RT Exp. L.1.%/wt. 38.242# MR (Calc.) 5 1.0000 5 25°C (nD-d/2) 1.023 2 30 mm 1.0000 5 Dispersion Dielectric 0.9560 BP 5 Flash Point \*C 0.9415 5 6.8900 A 75 to Fire Point tc B 1230 °C 1519.1 5 M Spec. C 206.2 5 AHc kcal/m Ultra V ΔHf A\*| 75 to 1.31375 5 X-Ray Dif. ΔFf B+ 205 °C 1423.3 Infrared Viscosity Solubility in c centistokes Acetone t<sub>x</sub> | to Carbon tet. •c Benzene 25 to 7,2310 Ether \_ 75 °C 1716.5 B١ 5 n-Heptane вŸ C' 224. 5 Ethanol to ú i 1.6607 •c Water A'\* 25 to 75 °C 5 Water in (BV) B'\* 1616.5 5 to Ac | 230 to 7.3039 5 (AV) °C Bc tc C 1903.0 cp liq. ۰ĸ Cc 258. Cryos. A\* c<sub>p</sub> vap. •ĸ consts. B° c<sub>v</sub> vap. t °C 193, 25 5  $T_R = 0.75 T_c$ # C-S-C, S = 7.2 grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

164.5 98.2 69.04 46.8 9.6 2.81 1200.6 0.97 0.96 -0.03	92 53 08 63	2 5 4 5 5 5 5 2 2 4 4	dt/dP *C/mm 25*C BP te 30 mm  AHm cal/g  AHv cal/g 25*C 30 mm BP te (d, e)	Molecular Weight 126.2 5.6107 0.05235 0.03665 0.7308	S 5 5 4	f g h l f' g h h l m l	to to		Ref
98.2 69.04 46.8 9.6 2.81 1200.6 0.97 0.96 -0.99 -0.03	92 53 08 63	2 5 4 5 5 5	°C/mm 25°C BP te 30 mm  AHm cal/g 25°C 30 mm BP te (d, e)	0.05235 0.03665 0.7308 88.51 84.11	5 5 5 4	g   h   f'   g'   h'   m	to		Rei
98.2 69.04 46.8 9.6 2.81 1200.6 0.97 0.96 -0.99 -0.03	92 53 08 63	5 4 5 5 5 5 2 2 4	°C/mm 25°C BP te 30 mm  AHm cal/g 25°C 30 mm BP te (d, e)	0.05235 0.03665 0.7308 88.51 84.11	5 5 4	g   h   f'   g'   h'   m	to		
98.2 69.04 46.8 9.6 2.81 1200.6 0.97 0.96 -0.99 -0.03	92 53 08 63	5 4 5 5 5 5 2 2 4	°C/mm 25°C BP te 30 mm  AHm cal/g 25°C 30 mm BP te (d, e)	0.05235 0.03665 0.7308 88.51 84.11	5 5 4	g   h   f'   g'   h'   m	to		
98.2 69.04 46.8 9.6 2.81 1200.6 0.97 0.96 0.99 -0.03	92 53 08 63	5 4 5 5 5 5 2 2 4	BP te 30 mm  ΔHm cal/g  ΔHv cal/g 25°C 30 mm  BP te te (d, e)	0.05235 0.03665 0.7308 88.51 84.11	5 5 4	f'   g'   h'   m	• <u>K</u>		-
98.2 69.04 46.8 9.6 2.81 1200.6 0.97 0.96 0.99 -0.03	92 53 08 63	5 4 5 5 5 5 2 2 4	t <sub>e</sub> 30 mm  ΔHm cal/g  ΔHv cal/g 25°C 30 mm  BP t <sub>e</sub> t <sub>e</sub> (d, e)	0.03665 0.7308 88.51 84.11	5 4	g' h' m	• <u>K</u>	-	
69. 04 46. 8 9. 6 2. 81 1200. 6 0. 97 0. 96 0. 99 -0. 03 1. 51 1. 50	92 53 08 63	5 5 5 2 2 4	30 mm  AHm cal/g  AHv cal/g  25°C  30 mm  BP  te te (d, e)	88.51 84.11		h' m			
9.6 2.81 1200.6 0.97 0.96 0.99 -0.03 1.51 1.50	53 08 63	5 5 5 2 2 4	ΔHv cal/g 25°C 30 mm BP t <sub>e</sub> t <sub>e</sub> (d, e)	84.11		m	to	<u> </u>	1
2.81 1200.6 0.97 0.96 0.99 -0.03	53 08 63	5 5 2 2 4	25°C 30 mm BP t <sub>e</sub> t <sub>e</sub> (d, e)	84.11			! to		1_
0.97 0.97 0.96 0.99 -0.03	53 08 63	5 2 2 4	25°C 30 mm BP t <sub>e</sub> t <sub>e</sub> (d, e)	84.11			1 41/		
0.97 0.97 0.96 0.99 -0.03	53 08 63	2 2 4	BP t <sub>e</sub> t <sub>e</sub> (d, e)		5	n	<u>•</u> K		
0.97 0.96 0.99 -0.0 <sub>3</sub> 1.51 1.50	08 63 33	2 4	t <sub>e</sub> t <sub>e</sub> (d, e)		5 5				—
0.97 0.96 0.99 -0.0 <sub>3</sub> 1.51 1.50	08 63 33	2 4	t <sub>e</sub> (a, e)	70.06	5	m'	to •K		
0.96 0.99 -0.0 <sub>3</sub> 1.51 1.50	33	4		69.95	5	o'			
-0.0 <sub>3</sub> 1.51 1.50		$\overline{}$	ΔHv/T <sub>e</sub>	19.36	5				+
1.51 1.50 1.50	90	4	d 70 to	92.64	5		tension cm, 20°C	32.08	5
1.50	_ [	4	185 °C	0.12 <b>3</b> 6 91.01	5	*	30	30.91	5
1.50			e' 70 °C	0.09994	5		40	29.77	5
1.50		2 2	d <sub>c</sub> g/ml			Parach	or [P] 20°C		
		4	v_mi/g	202	ا ۔ ا		30		
0.68	86	4	•	382.	5		40		_
38.78		2		25450.	5			307.7	5
38.29	2#	. 5		1 0000	5	Exp. L			
1.02	36	2	30 mm	1.0000	5	Disper			
			BP	0.9580		Flash I	Point *C		T
	51	5	te	0.7440		Fire P	oint		
			AHc kcal/m	<b></b>					
	46	5	ΔHf						
1404.2		5							
									Т
			•						
	83	5				Ether	•		
		5	B <sup>V</sup> to						
	29	5	A   •C			Water			
1594.5		5	(B <sup>V</sup> )  to			Water	in		+
	54	5	(A <sup>V</sup> )  °C	<u> </u>	<u>L</u>				
1866.6		5	c liq. *K						
233.3		-	i -						
	1		p vap. K						
183.63		5	c <sub>v</sub> vap.						1
Tc	1		# C-S-C, S = 7	· . 2		gram	s/100 gra	ms solve	nt
	ow				et. da				
<del></del>				<del></del>					
ION:									
	EREN				-				
W REF	JAEI		••						
	38.78 38.29 1.02 6.92 1498.4 206. 1.35 1404.2 7.26 1693.1 223.3 1.70 1594.5 7.33 1866.6 255.3  Tc ES: 1-D	7. 2683 1693.1 223.3 1. 7029 1594.5 7. 3354 1866.6 255.3 183.63 T <sub>C</sub>	38, 78 38, 292# 5 1, 0236 2  6, 9251 5 1498.4 5 206. 5  1, 3546 5 1404. 2 5  7, 2683 5 1693.1 5 223.3 5 1, 7029 5 77, 3354 5 1866.6 5 255.3 5  183.63 5  Tc ES: 1-Dow 2-A  AFION: AFI	0.6886 4  38.78 38.292# 5 1.0236 2  PV/RT 25°C 30 mm BP  6.9251 5 1498.4 5 206. 5  1.3546 5 1404.2 5  7.2683 5 1693.1 5 223.3 5 1.7029 5 1594.5 5 (B')  to A'   °C  7,3354 5 (A')  °C  c <sub>p</sub> liq. °K c <sub>p</sub> vap. °K  183.63 5 C-S-C, S = 7 ES: 1-Dow 2-API 3-Lit. 4-API	0.6886 4  38.78 38.292# 1.0236 2  PV/RT 25°C 1.0000 BP 0.9580 1.0000 BP 0.9580 1.0000 BP 0.9580 1.0000 BP 0.9580 1.0000 BP 0.9580 1.0000 BP 0.9580 1.0000 BP 0.9580 1.0000 BP 0.9580 1.0000 BP 0.9580 1.0000 BP 0.9580 1.0000 BP 0.9580 1.0000 BP 0.9580 1.0000 BP 0.9580 1.0000 BP 0.9580 1.0000 BP 0.9580 1.0000 BP 0.9580 1.0000 BP 0.9580 1.0000 AHI AFI  C   C   C   C   C   C   C   C   C   C   C   C   C	0. 6886 4 38.78 38.292# 5 1.0236 2  PV/RT 25°C 1.0000 5 1	0. 6886 4 P <sub>C</sub> mm 25450. 5  38. 78 38. 292 5 1. 0236 2  PV/RT 25°C 1. 0000 5 1. 0000 5 BP 0. 9580 5 1498. 4 206. 5  AHC kcal/m ΔHf ΔFf Viscosity centistokes γ γ °C  7. 2683 5 1693. 1 223. 3 5 1. 7029 5 1. 7029 5 1. 7029 5 1. 70354 5 255. 3 5  P <sub>C</sub> mm 25450. 5  Disper Flash I Fire P Viscosity centistokes γ γ °C  Solubil: Aceto Carbo Bense Ether n-Hep Ethan Water Water  T <sub>C</sub> μ C-S-C, S = 7. 2 gram  T <sub>C</sub> μ C-S-C, S = 7. 2 gram  API  ION: API	0.6886	O. 6886

## TABLE V. ALKYL NAPHTHALENES

NAME	•	Vaph	thale	ene			STRUCTURAL FORMULA				
									}		
Mole % Pur. 99		Ref.		ecul		Molecular Weight 128.16	.4				
				Ref			Ref.		Ref.		
F. P. *C	80	0.21		1	dt/dP			f to	$\top$		
F.P. 100	6 80	0.55		1	°C/mm		_	g   • <u>K</u>	1 1		
B. P. *C					25°C BP	60.010 0.0584	5 2	h			
760 mm		7.95 4.31	5	2 2	t <sub>e</sub>	0.0380	5	f¹ to			
30	112	2.0		4	30 mm	0.8069	4	g' <u>K</u>			
10		7.5 6.6		5	ΔHm cal/g	33.67	1	h'	$\rightarrow$		
Pressure	1 30	0.0		$\vdash$	ΔHv cal/g			m to			
mm 25°C	:   (	0.21	29	5	25°C 30 mm	107.93 95.05	5	"   ' <u>-</u> -	1 1		
t <sub>e</sub>	1326	6.		5	BP BP	78.66	5	m¹ to	$\dashv \dashv$		
Density	٠ ا ـ			ا ۔ ا	t <sub>e</sub> ,	74.89	5	m' to r' 'K	1 1		
g/ml 20°0		1.02 1.01		5	te (d, e)	74.60	5	0'  7	1 1		
dt 25 4 30		0.99		5	AHv/Te	18.55	5	Surface tension			
		1.08		5	d 110 to e 250 °C	112.37 0.1546	5	dynes/cm121°C   29.3	36		
ь		0.00	214	5	d' 20 to	111.63	5	30 35.23 40 31.52	5 5		
Ref. Inde:					e'   110 °C		5	Parachor [P]	+		
25					d <sub>c</sub> g/ml	0.314 3.1847	31	121°C 314.1	4		
85	1	1.58	98	2	vc ml/g tc °C	469.00	32	30 40			
"C"	<del></del>	0.78	72	4	Pcmm	29792.	33	Sugd. 312.9	5		
MR (Obs. MR (Calc		4.34 4.18		2 5	PV/RT		$\vdash$	Exp. L.1.%/wt.			
(nD-d/2)8		1.10		Ž	25°C 30 mm	1.0000	5	u.			
Dielectric	: 2	2.54		3	BP	0.9400	5	Dispersion 85°C 297. Flash Point C 87.78	37		
A 110 to		6.84		2	t <sub>e</sub>	0.9208 0.261	5	Fire Point			
B (280 °C		6.52 7.22		2 2	tc AHc kcal/m	1230.7	34	M. Spec.			
A* 110 to	<del></del>	1,27		5	ΔHf		•	Ultra V. X-Ray Dif.			
B+[260 °				5	ΔFf	-	├	Infrared			
K					Viscosity centistokes		1	Solubility in +			
t <sub>k</sub>   te					ກ 80 °C	0.969	35	Acetone 69.16 Carbon tet, 26.82	1 1		
1 × 1					121 205	0.4647 0.401	3 <sup>2</sup>	Benzene 65.71	1		
A'   10 to B'   110 *	1815	7.18 5.3	400	5	360	0, 262	35	Ether 57.12 n-Heptane 19.82	1 1		
č' '-'-' '	200	6.1		5	B <sub>v</sub> 80 to	1082.71	4	n-Heptane 19.82 Ethanol 12.10	i		
A** 10 to		1.61	585	5	A' 1220 °C	<b>T</b> . 92089	4	Water 0.00	40 1		
B'+110 *	$-\!$			5	(B <sup>V</sup> )  to			Water in	+		
Ac 280 to		8.04 0.8	26 <b>6</b>	5	(A <sup>V</sup> )  °C		<u> </u>				
Bc tc	- 352	2.3		5	c <sub>p</sub> liq. •K						
Cryos. A consts. B		0.01	740	1	c <sub>p</sub> vap.25 ℃	0.3130	4				
te °C F	244	4.24		5	c <sub>v</sub> vap.						
$T_R = 0$ .	75 T <sub>c</sub>				·	*		grams/100 grams solv	ent		
REFEREN	CES:	1-D	ow	2-A	PI 3-Lit. 4	-Calc, from de	t. de				
SOURCE: API											
PURIFICATION: API											
LITERAT	URE R	EFE	ERE	NCE	S: 3 NBS Cir	c. 514; 3 <sup>1</sup> Z.	Phy	sik. Chem. B49, 272 (1941	)		
E. Schroe	r; 3 <sup>2</sup>	Can.	. J.	Res.	19, 73 (1941)	, Campbell and	d Car	mpbell; 33 Ind. Eng. Cher	n.		
34, 52 (19	42), M	eisn	er a	nd R	eading; 3 <sup>4</sup> J.	Chim. Phys.	28, 4	157 (1931), L. J. P. Keffle	r;		
								Chem. 38, 761 (1934), Lee			

3° C.A. 44, 8721 (1950), Golik and Rarrkovich; 3<sup>6</sup> J. Phys. Chem. 38, 761 (1934), Lee Ward; 3<sup>7</sup> Lange

No. 2 l-Methylnaphthalene STRUCTURAL FORMULA NAME СНз Molecular Ref. Molecular Mole  $C_{11}H_{10}$ % Pur Formula Weight 142,190 Ref Ref. Ref. F.P. \*C F.P. 100% -30.57 2 dt/dP f to \*C/mm 25\*C •ĸ g 183.3 B. P. \*C 5 h BP 0.0604 2 760 mm 244.642 2 t, 0.0373 5 ſ١ to 100 167,776 2 g' ۰ĸ 30 133,6 4 30 mm 0.8577 4 10 107.4 5 h' ∆Hm cal/g 1 63.5 5 to m AHv cal/g Pressure •ĸ n 25°C 100.96 5 mm 25°C 0.0671 5 89.88 o 30 mm te 1400.8 5 5 ВP 76.45 m' to Density g/ml 20°C te (d, e) 73.14 5 •ĸ n' 1.02015 5 72.83 ۰, 25 1.01630 2 d4 ΔHv/Te 18.98 5 30 1.01245 4 Surface tension 90 106.04 5 d to 1.03555 -0.0<sub>3</sub>77 40.68 dynes/cm. 20°C 5 270 °C 0.1210 Ъ 4 30 39.46 ď 10 to 103.51 40 38, 28 5 •' Ref. Index 90 0.1020 5 20°C 1.6174  $\mathbf{n}_{D}$ [P] Parachor d g/ml v ml/g tc °C 0.319 5 25 1.6149 2 20°C 3.13 5 30 1.6124 4 30 496. 5 40 "C" 0.7852 4 5 mm 26765. 5 Sugd 352.0 MR (Obs.) 48,795 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 48,803 25°C 1,0000 (nD-d/2) 1.1073 2 30 mm 1.0000 5 Dispersion 295. 2 Dielectric 2.71 3 5 BP 0.9397 Flash Point °C t<sub>e</sub> 0.9191 5 A 130 to 7.06899 2 Fire Point 0.25 5 B 1305 °C 1852.674 2 M Spec. Ultra V c AHc kcal/m 197.716 ΔHf 1.50733 A\* | 130 to 5 X-Ray Dif. ΔFſ B+ 290 °C 1749.9 Infrared ĸ Viscosity Viscos.., centistokes °C Solubility in Acetone Carbon tet. •c Bensene 10 to 7.42128 Ether B' ∟130 °C 2093.5 n-Heptane C' 218.6 B 5 to Ethanol Av •c Water A\*\* 10 to 1.86734 5 Water in (BV) B'# 130 °C 1986.9 to Ac | 305 to 7.48224 5 (A<sup>V</sup>) ٠c Bc tc\_C 2290.2 cp liq. ۰ĸ Cc 253.8 Cryos. A. •ĸ c<sub>p</sub> vap. consts. B° c, vap. te °C 274.59 5  $T_R = 0.75 T_C$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula API SOURCE: API PURIFICATION: LITERATURE REFERENCES: 3 NBS Circ. 514

NAME	2 - Methylnaphthalene						STRUCTURAL FORMULA			
									СН3	
Mole % Pur.	Ref.		lecul mula		Molecular Weight 142,1	90			<i>y</i> 	
			Ref.	I		Ref.				Ref.
F. P. *C	34.5	8	2	dt/dP			f	to		$\top$
F.P. 100%				°C/mm			gl	*K		
B. P. *C				25°C	155.6	5	h			1
760 mm	241.0		2	BP	0.0600	2	f'	to		+-
100	164.6		2	t <sub>e</sub>	0.0373	5	g	*K		
30 10	130.7 104.7		4 5	30 mm	0.8521	4	h'			
1	61.1		5	AHm cal/g	20.11	31	<del></del>			+-
Pressure				ΔHv cal/g		_	m	to •K		
mm 25°C	0.0	800	5	25°C 30 mm	99.84 89.20	5	0 !			
t <sub>e</sub>	1393.		5	BP	75.98	5				+
Density	1	#		t <sub>e</sub>	72.73	5	m' l	to •K		1
g/ml 20°C	1.0	058 020	4	te (d, e)	72.45	5	ا اه			
d <sub>4</sub> 40	0.9	9045	3	ΔHv/T <sub>e</sub>	19.02	5				+-
<b>a</b>	1.0		4	d 130 to	104.86	5		ce tension	38, 44	5
b	-0.0		4	270 °C		5	ayne	s/cm. 20°C   30	37.29	5
Ref. Index	+			d' 20 to e' 130 °C	102.36	5		40	36.16	5
n <sub>D</sub> 20°C				<del></del>	0.1000	╁	Para	chor [P]		
23	1			d g/ml				20°C		
40	1.6		2	vc ml/g tc °C	488.7	5	l	30 40		1
"C"	0.7	823	4	P <sub>c</sub> mm	26274.	5		Sugd.	352.0	5
MR (Obs.)			4	PV/RT		+	F	L. 1. %/wt.		+-
MR (Calc.	48.8	03 *****	5	25°C	1,0000	5	Exp.	L. 1. 70/Wt.		
(nD-d/2)		067 <sup>‡</sup>	4	30 mm	1.0000	5	Disp	ersion 40°C	293.	2
Dielectric	40° 2.5	7	5	BP	0.9410	5	Flas	h Point C		
A 130 to		6850	2	t e t c	0.9207	5		Point		
B 1 300 °C	1840.2 198.3		2	ΔHc kcal/m	1383.9	32	М. 5	Spec.		
			<del>                                     </del>	AHÍ	1363.9	) ·	Ultra		1	
A* 130 to B* 290 °C		0750	5	ΔFf			X-Ru Infra	ay Dif.		
ĸ L Z	-			Viscosity			<u> </u>		<del> </del>	+
t, to	- [			centistokes				bility in Tetone	ļ	
			1	η ·c	Î			bon tet.	1	
A'   15 to	<b>_</b>	2076	5					zene	1	
B' 130 °C	2079.4	2076	5	ļ	<b>_</b>	1_	Eth n-H	er Ieptane		
c'	219.1		5	B <sup>V</sup> to *C			Eth	anol		
A** 15 to		6810	5		_		Wat			
B'* 130 °C	1973.0		5	(B <sup>V</sup> )  to		1	Wat	ter in	<del> </del>	+
Acl 300 to	7.4	8161	5	(A <sup>V</sup> )  °C	1	L			1	
Bc te C	2273.4 253.8		5	c <sub>p</sub> liq. °K						
Cryos. A*	453.8		<b>├</b> -	1)	1					-
consts. B°			L.	P						
te °C F	270.5	1	5	c <sub>v</sub> vap.	1	<u></u>	L		l	
$T_{\mathbf{R}} = 0.7$				≠ extrapolated				ams/100 gra		nt
REFEREN	CES: 1-1	Dow	2-A	<del></del>	Calc. from de	et. da	ta 5-	Calc. by for	mula	
SOURCE:				API						
PURIFICA	TION:			API						
LITERATU	RE REF	ERE	NCE	S: 3 J. Res.	N. B. S. 24, 3	95 (1	940) M	air and Strei	ff;	
				man, Parks an	_					ion
and Parks	_ · · · · · · · · · · · · · · · · · · ·	,		,			<u></u> ,	(./-//		

<u> </u>							No. 4	
NAME	l -Ethylna	phthe	lene		STRUCTURAL FORMULA C2H5			
1					<b>~</b> ℃2 <sup>n</sup> 5			
						[ [	]	
Mole % Pur.		lecul: rmul:	r C <sub>12</sub> H <sub>12</sub>	Molecular Weight 156.2	16	$\sim$		
70 Pur.	1 1 70	_	10 10	weight 150.2				Ref.
	12.00	Ref.		r	Ref	<b></b>		Ke
F.P. 100%	-13,88	2	dt/dP *C/mm			f to		
B. P. *C		$\vdash$	25°C	487.72	5	8   ' <del>*</del> K		1
760 mm	258.67	2	BP	0.0615	2 5	H		+
100 30	180.68	2	t <sub>e</sub>	0.0375	4	g' to		
10	146.2 120.0	4 5	30 mm	0.8627	1	h		1
1	76.	5	ΔHm cal/g	<del> </del>		m to		$\vdash$
Pressure mm 25°C		_	ΔHv cal/g 25°C	103.15	5	n ' •K_		
t <sub>e</sub>	0.0225 1435.2	5	30 mm	86.47	5	<u> </u>		
Density		H	BP	71.78	5	m' to		
g/ml 20°C	1.00816	2	t (d, e)	67.61	5	n'   ' *K-		
dt 25	1.00446	2 4	ΔHv/T <sub>e</sub>	18.89	5	<u></u>		<b>↓</b>
-	1.02296	4	d   145 to	105.57	5	Surface tension dynes/cm. 20°C	40.54	5
ь	-0.00074	4	290 °C		5	30	39.37	5
Ref. Index			e' 145 °C		5	40	38,21	5
<sup>B</sup> D 20°C	1.6062	2 2	d g/ml v ml/g	0.325	5	Parachor [P]		
30	1.6005	4	tc *C	3.077	5	30		
"C"	0.7800	4		502.4	5	40	201 0	1.
MR (Obs.)	53.452	2	P <sub>c</sub> mm PV/RT	23234.	3		391.0	5
MR (Calc.)		5	25°C	1.0000	5	Exp. L.1.%/wt. u.	1	
(nD-d/2) Dielectric	1,1021	2	30 mm	1.0000	5	Dispersion	285.	2
A 145 to	2.58	5	BP t <sub>e</sub>	0.9370 0.9150	5	Flash Point °C		
B 1310 °C		2 2	tc	0.248	5	Fire Point	ļ	┼
<u>c</u>	180.5	2	ΔHc kcal/m			M Spec. Ultra V.	l	
A* 145 to	1.44271	5	ΔHf ΔFf		1	X-Ray Dif.		1
B* 1300 °C	1695.6	5	Viscosity		-	Infrared	ļ	┼
c			centistokes		1	Solubility in + Acetone	ł	ł
1 to 00			η •c			Carbon tet.		ŀ
A' 0 to		5		1	1	Bensene Ether		ì
B'   145 °C		5	ļ		↓	n-Heptane	1	
C'	201.1	5	B <sup>V</sup> to			Ethanol		
A'* 15 to B'* 145 °C	1.80518	5 5		-		Water Water in		
Ac   310 to	7.35228	5	v. '	1	1			T
Bc t C	2195.7	5		<b></b>	+	-		
Ce	232.9	5	c <sub>p</sub> liq. •K		1			
Cryos, A°	İ		c <sub>p</sub> vap. *K	ı	1		I	
	300.54	5	c, vap.		1		1	
t <sub>e</sub> *C F	290.54	L 3	L	L	<u> </u>	II	I	
		2 4 7	27 2 744 4	7-1-		grams/100 gram		1 <b>t</b>
SOURCE:	ES: 1-Dow		PI 3-Lit, 4-0	Jaic. Irom de	t. da	ta 5-Calc, by for	mula	
	TON.							
PURIFICAT			PI					
LITERATU	RE REFERE	NCE	5:					
1								
1								
1								
1								
L						<del></del>		

NAME	2 - Ethylnap	hthal	lene	STRUCTURAL FORMULA			
					C <sub>2</sub> H <sub>5</sub>		
Mole % Pur.	Ref. Mo	lecul mul	C <sub>12</sub> H <sub>12</sub>				
		Ref.			Ref.	Ref.	
F.P. *C F.P. 100	_7.4 %	2	dt/dP °C/mm			f to	
B. P. *C 760 mm	257.9	2	25°C BP	406, 37 0, 0611 0, 0370	5 4 5	h   f'   to	
100 30 10	180.1 145.5	2 4 5	t <sub>e</sub> 30 mm	0.8691	4	g' <u>*K</u>	
1	119.0 74.	5	AHm cal/g	ļ		h' to	
Pressure mm 25°C		5	ΔHv cal/g 25°C 30 mm	98.66 85.53	5	n   *K	
t <sub>e</sub>	1439.5	5	BP	72.42	5	m¹ to	
Density g/ml 20° dt 25 d4 30	C 0.9922 0.9885	2 2	te (d, e)	69.01	5 5	n'   <u>•K</u>	
4 30	0.9848	4	ΔHv/T <sub>e</sub> d 145 to	19.15	5	Surface tension	
b	1.0070 -0.0 <sub>3</sub> 74	4	d 280 °C to	0.1166	5	dynes/cm. 20°C 38.04 5 30 36.91 5 40 35.82 5	
Ref. Inde		2	e'   145 °C	0.1089	5	Parachor [P]	
D 25 30	1.5977 1.5951	2	d g/ml vc ml/g tc °C	498.6	5	20°C 30 40	
"C"	0.7860	4	P <sub>c</sub> mm	23788.	5	Sugd. 391.0 5	
MR (Obs. MR (Calc (nD-d/2)		5 2	PV/RT 25°C 30 mm	1.0000	5	Exp. L.1.%/wt.	
Dielectric	2.260	5	BP BP	1.0000 0.9411	5	Dispersion 285. 2 Flash Point *C	
A 145 to B 305 %	C_ 1886.	2	te tc	0.9192	5	Fire Point  M. Spec.	
A* 145 to B* 300 *		5 5	ΔHc kcal/m ΔHf ΔFf			Ultra V. X-Ray Dif.	
k	_		Viscosity centistokes			Infrared Solubility in + Acetone	
t <sub>x</sub>	Č		η ·c			Carbon tet. Benzene	
A'   15 to B'   145 °	7.4350 C 2131.1 212.2	5 5 5	B <sup>v</sup> to		ļ	Ether n-Heptane Ethanol	
A'* 15 t B'* 145 *	0 1.92177 C 2027.3	5	$\frac{A^{V}}{(B^{V}) } - \frac{\cdot C}{to}$	-		Water Water in	
Acl 305 t	C 2308.7	5	(A <sup>V</sup> )  °C c <sub>p</sub> liq. °K	<del> </del>	-		
Cryos. A		5	c <sub>p</sub> vap. *K				
<del></del>	289.67	5	c <sub>v</sub> vap.				
$T_R = 0$		1	<u> </u>	1	Щ.	grams/100 grams solvent	
	NCES: 1-Dow	2-A	PI 3-Lit. 4-	Calc. from de	t. de		
SOURCE:			API				
PURIFICA	TION:		API				
LITERAT	UR <b>E RE</b> FERE	NCE	S:				

No. 6 STRUCTURAL FORMULA 1, 2-Dimethylnaphthalene NAME CH<sub>3</sub> CH<sub>3</sub> Molecular C12H12 Mole Ref. Molecular Weight 156.216 % Pur. Formula Ref. Ref Ref. F.P. C -1.0 2 dt/dP ſ to °C/mm <u>•</u>K g 25°C 831.7 B. P. °C h 0.0611 5 BP 266. 760 mm 2 ſ 5 0.0364 to 100 188,2 5 g' °K 30 153.7 5 30 mm 0.8666 5 10 127. 5 h\* AHm cal/g ١ 83. 5 to m ΔHv cal/g Pressure n •K 25°C 107.16 mm 25°C 0.0127 5 o 30 mm te 89.16 5 1469. 5 BP 74.89 5 Density g/ml 20°C m ١ to 5 71.14 te (d, e) •ĸ n' 1.013 2 70.71 5 ۰'  $\mathbf{d_4^t}$ 25 1.009 AHV/T 5 19.43 30 1.005 4 Surface tension d | 150 108.70 5 1.029 to 4 a b dynes/cm. 20°C 41.33 <u>| 290</u> | 20 0.1271 5 -0.038 4 40.04 38.78 5 ď٠ 30 to 110.65 40 Ref. Index 150 e' •c 0.1398 5 20°C 1.6164 2 [P] ď Parachor d<sub>c</sub> g/ml 0.330 5 25 20°C 1.6142 2 vc ml/g tc °C 3.03 30 1.6111 4 30 511. 5 40 "C" 0.7896 4 P<sub>c</sub> mm 24536. 5 Sugd. 391.0 5 MR (Obs.) 53.9 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 53.421 25°C 1.0000 (nD-d/2) 2 1.110 30 mm 1.0000 Dispersion 290. 2 5 Dielectric 2.613 5 ВP 0.9448 5 Flash Point °C te 0.9232 5 A 150 to 7.0512 Fire Point 0.24 5 B 1315 °C 1860. M Spec. C 180. AHc kcal/m Ultra V. ΔHf A\* 150 to 1.5148 X-Ray Dif. 5 ΔFf B\* 300 °C 1758. Infrared Viscosity Solubility in centistokes Acetone Carbon tet. •c Benzene 20 to 7,4024 Ether B' ∟150 °C 2102. n-Heptane B<sup>V</sup> | 201. to Ethanol •c Water A'# 20 to 1.8972 5 Water in (BV) 2005. B'\* 150 °C to Ac | 315 to 7.4435  $(A^{V})_{\parallel}$ °C Bc \_tc\_C 2269. cp liq. ۰ĸ Cc 232. 5 Cryos. A. ٠ĸ cp vap. consts. B° te C c, vap. 5 F 298.88  $T_R = 0.75 T_c$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

<del></del>							No. 7		
NAME	1, 3-Dime	hylna	phthalene		STRUCTURAL FORMULA				
				•	H <sub>3</sub>				
							<b>]</b>		
Mole % Pur.		rmul	ar C <sub>12</sub> H <sub>12</sub>	Molecular Weight 156.2	16		JCH3		
<del></del>		Ref		Vergin 130.5	Ref.		Ref		
F. P. *C	-4.0	2	dt/dP						
F.P. 100%		+	°C/mm			f to			
B. P. *C		1	25°C	726.7	5	h	1		
760 mm	263.	2	BP t <sub>e</sub>	0.0608 0.0364	5	f' to	1		
100 30	185.7 151.4	5	30 mm	0.8612	5	g' <u>K</u>			
10	125.	5	ΔHm cal/g	0,000	+-	h'			
1	81.	5	ΔHv cal/g			m to			
Pressure mm 25°C	0, 0146	5	25°C	106.46	5	n   •K	4		
t <sub>e</sub>	1463.	5	30 mm BP	88.74 74.50	5				
Density			t.	70.88	5	m' to			
g/ml 20°C	1.0063	2 2	te (d, e)	70.36	5	;;  *	4		
d <sub>4</sub> 30	0.9989	4	ΔHv/T <sub>e</sub>	19.47	5	Surface Accessor	+		
	1.0211	4	d 150 to	108.05	5	Surface tension dynes/cm. 20°C	40.25 5		
ь	-0.0374	4	15 to	0.1276	5	¥ 30	39.07 5		
Ref. Index	1,6090	2	e'   150 °C	0.1402	5	40 D	37.93 5		
n <sub>D</sub> 20°C	1.6068	2	d <sub>c</sub> g/ml	0.330 3.03	5	Parachor [P] 20°C	1		
30	1.6042	4	vc ml/g tc °C	508.	5	30			
"C"	0.7860	4	P <sub>c</sub> mm	24833.	5	40 Sugd	. 391.0 5		
MR (Obs.) MR (Calc.)	53.75	2	PV/RT	<del></del>	-	Exp. L.1.%/wt.	<del></del>		
(nD-d/2)	53.421 1.1058	2	25°C	1.0000	5	u.			
Dielectric	2,589	4	30 mm BP	1.0000 0.9451	5	Dispersion	290. 2		
A 150 to	7,0469	5	t e	0.9247	5	Flash Point C Fire Point			
B (313 °C	1845.6	5		0.24	5	M. Spec.	<del>                                     </del>		
A* 150 to	180.	5	ΔHc kcal/m ΔHf			Ultra V.			
B*  300 °C	1.51108	5	ΔFf	L		X-Ray Dif. Infrared			
K			Viscosity			Solubility in +			
t <sub>k</sub> – to	• ]	İ	rentistokes C			Acetone	∞		
€ °C			1	İ		Carbon tet. Benzene	e0		
A'   20 to	7.3978	5	1			Ether	<b>∞</b>		
B' 150 °C	2085.	5	B <sup>V</sup> to		1	n-Heptane Ethanol	80		
A'+ 20 to	1.8944	5	A C	-		Water	~		
B'+150 °C		5	(B <sup>V</sup> )  to	1		Water in	<del> </del>		
Acl 313 to	7.4389	5	(A <sup>V</sup> )  °C	<u> </u>					
Bc tc C	2252. 232.	5	c <sub>p</sub> liq. *K						
Cryos. A*	<del>                                     </del>	+	c <sub>p</sub> vap. *K	1					
consts. B°		$\perp$	11		1				
te °C F	295.47	5	c <sub>v</sub> vap.	<u> </u>		L			
$T_R = 0.7$						grams/100 gr			
REFERENC	ES: 1-Dow			Calc. from de	et. de	ata 5-Calc. by fo	rmula		
SOURCE:			API						
PURIFICAT	TION:		API						
LITERATU	RE REFER	ENCE	s:						
1									
1									
I									

							No. 8	
NAME	1,4-Dimet	thylna	p <b>hthalene</b>			STRUCTURAL I		
		_				CI	H <sub>3</sub>	
							]	
Mole % Pur.	Ref. Me	olecui ormul	ar C <sub>12</sub> H <sub>12</sub>	Molecular Weight 156.2	216	V	H <sub>3</sub>	
		Ref.	1		Ref			eſ.
F.P. °C	7.66	2	dt/dP			f to		
F. P. 100%			*C/mm 25*C	907.1	5	g  K_		
B. P. °C 760 mm	268.	2	BP	0.0614	5			
1 00	189.9	5	t <sub>e</sub>	0.0365	5	f' to		
30 10	155.2 129.	5	30 mm	0.8703	5	h'		
1	84.	5	ΔHm cal/g ΔHv cal/g	<del> </del>	<del> </del>	m to		
Pressure mm 25°C	0.0116	5	25°C	107.58	5	n   •K		
t <sub>e</sub>	1473.	5	30 mm BP	89.42 74.94	5	<u> </u>		
Density g/ml 20°C	1,0166	2	l t_	71.30	5	m' to		
at 25	1.0129	2	t <sub>e</sub> (d, e) ΔHv/T <sub>e</sub>	70.68	5	0'  =-		
	1.0092	4	d   155 to	19.39	5	Surface tension		_
a b	1.0314	4 4		0.1284	5	dynes/cm. 20°C		5
Ref. Index	<u> </u>		d'   20 to		5	40		5
<sup>n</sup> D 20°C	1.6127	2 2	d g/ml	0.333	5	Parachor [P] 20°C		
30	1.6079	4	vc ml/g tc °C	3.003 517.	5	30		
"C"	0.7824	4	P <sub>c</sub> mm	25219.	5	40 Sugd.	391.0	5
MR (Obs.) MR (Calc.)	53.47 53.421	2 5	PV/RT	<b>†</b>	$\vdash$	Exp. L.1.%/wt.		<u> </u>
(aD-d/2)	1.1044	2	25°C 30 mm	1.0000	5	u. Dispersion	290.	2
Dielectric	2.601	5	BP	0.9422	5	Flash Point *C	270.	<u>-</u>
A 155 to B 320 °C	7.0527 1869.0	5	t <sub>e</sub> t <sub>c</sub>	0.9221 0.24	5	Fire Point		
<u>c</u>	180.	5	∆Hc kcal/m	<u> </u>	$t^-$	M Spec. Ultra V.		
A*   155 to	1.5160	5	ΔHf ΔFf		1	X-Ray Dif.		
B*   310 °C	1767.	5	Viscosity		†	Infrared Solubility in +		
t			centistokes	1	1	Solubility in + Acetone	<b>80</b>	
tk   to tx   *C	İ		7 ·c		1	Carbon tet. Benzene	ec ec	
A' 20 to	7.4040	5			1	Ether	80	
B' (155 °C	2112.	5	B <sup>V</sup>   to		1	n-Heptane Ethanol	80	
A** 20 to	1.8982	5	A <sup>V</sup>   _ •C			Water Water in		
B'* 155 °C	<del></del>	5	(B <sup>V</sup> ) to					_
Ac   320 to	7.4460 2283.	5	(A <sup>V</sup> )  •C		<del> </del>			
CE	233.	5	c <sub>p</sub> liq. •K					
Cryos, A° consts, B°			c <sub>p</sub> vap. *K					
te °C F	301.16	5	c <sub>v</sub> vap.					
$T_{\mathbf{R}} = 0.79$						grams/100 gran	ns solvent	
	ES: 1-Dow			Calc, from de	t. da	ta 5-Calc. by form	nula	
SOURCE:	TON.	AF		<del></del>				
PURIFICAT	RE REFERE	AF						
1 DAY 1 01	·· REFERE	NCES	<b>)</b> :					

TABLE V. ALKYL NAPHTHALENES

No 9

Mole	<del></del>							No. 9
Mole	NAME	1,5-Dimet	hylnaj	phthalene	_	STRUCTURAL FORMULA		
Formula							<b>✓</b> ¸	···s •η
Formula	Mole	Ref. Mo	lecula		Molecular			ا
F. P. 'C						16	ČH3	
F. P. 100%  B. P. °C 760 mm 265. 100			Ref.			Ref.		Re
B. P. °C   760 mm   187.4   5   100   187.4   5   10   197.4   5   10   197.4   5   10   197.4   5   10   197.4   5   10   126.5   5		82.0	2					
The content of the					794.3	5		
100		265.	2	BP	0.06076	5	· · · · · · · · · · · · · · · · · · ·	
1		187.4			1	1 1		
1   82.   5   Altim cal/g   25°C   146.2   5   1467.   5   5   BP   74.71   5   5					0.8649	5		
Pressure   mm 25°C   146.2   5   1467.   5   5   1467.   5   5   1467.   5   5   1467.   5   5   1467.   5   5   1467.   5   5   1467.   5   5   1467.   5   5   1467.   5   5   1467.   5   5   1467.   5   1467.   5   1467.   5   1467.   5   1467.   5   1467.   5   1467.   5   1467.   5   1467.   5   1467.   5   1467.   5   1467.   5   1467.   5   1467.   5   1467.   5   1467.   19.43   5   5   1467.   19.43   5   1467.   19.43   5   1467.   19.43   5   1467.   19.43   5   1467.   19.43   5   1467.   19.43   5   1467.   19.43   5   1467.   19.43   5   1467.   19.43   5   1467.   19.43   5   1467.   19.43   5   1467.   19.43   5   1467.   19.43   5   1467.   19.43   5   1467.   19.43   5   1467.   19.43   19.	1		5		<del> </del>	-	<u> </u>	
Mar   19   1467.   5   8   89,02   5   74,71   5   71,02   7		144.3	_		106, 91	5		
Density g/ml 20°C   1.003 ?   5   6   (d, e)   71.02   5   6   (d, e)   70.53   70.53   7				30 mm	89.02	5	°i	
			+ $-$	t.				
A   150 to   1.5133   5   C   1855.   5   C   180.   5   5   C   180.   5   C   180.   5   C   1753.   5   C   180.   5   C   1753.   5   C	g/ml 20°C			te (d, e)				
The image is a content of the content of the image is a content of the image is a content of t	d <sup>t</sup> 30			ΔHv/T <sub>e</sub>	19.43	5		
B		1.0190	+	d 150 to				39,72 5
Ref. Index np 20°C 25°C 30  "C"  MR (Obs.) MR (Calc.) (aD-d/2) Dielectric Dielectric  A   150 to   7.0493   5 te   0.9235   5		-0.0380		-3-1-290 °C			¥ 30	38.47 5
Dispersion   Dis				e'   150 °C			<b> </b>	37.25 5
MR (Obs.)   MR (Calc.)   (nD-d/2)   S3.421   S   P <sub>C</sub> mm   24142.   S   Sugd. 391.0   S	25			dc g/ml				
MR (Obs.)   MR (Calc.)   (nD-d/2)   S3.421   S   P <sub>C</sub> mm   24142.   S   Sugd. 391.0   S			$\sqcup$	tc °C				
MR (Calc.)   53.421   5		ļ	$\sqcup$		24142.	5	0	391.0 5
Dielectric   C		53, 421	5	PV/RT			Exp. L.1.%/wt.	
BP		55, 121	1					
A   150 to   7,0493   5   te   0.9235   5   Fire Point    A   150 to   1.5133   5   AHc kcal/m   AHf   AFf    A   150 to   1.5133   5   AHc kcal/m   AHf   AFf    A   150 to   1.5133   5   AHc kcal/m   AHf   AFf    Viscosity   Centistokes   7   °C    A   120 to   7,4003   5   5    B   150 °C   200,97   5    A   20 to   1.8958   5   B   150 °C   1999, 2   5    B   150 °C   2501, 3   5    C   C   C   C   C   C   C   C    C   C	Dielectric			BP	0.9444	5		<del> </del>
C   180.   5   AHc kcal/m   AHf   A				į.	0.9235	5		
A#  150 to B*  300 °C R K C t t t C t t T T S  AFF   Viscosity centistokes T C C C C C C C C C C C C C C C C C C					<del></del>	├─		
Description		1.5133	5			]		}
Ct		1753.	5		-	$\vdash$		
Carbon tet.   Benzene   Ether   Septembe						1		
A   20 to   7,4003   5	,K '			η •c		ŀ		
150 °C   2096.1   5   8   10   10   10   10   10   10   10	. *	7 4003	+					1
A   20 to   1.8958   5   A   1.8958   5   A   1.8958   5   A   1.8958   5   A   1.8958   5   A   1.8958   5   A   1.8958   5   A   1.8958   5   A   1.8958   5   A   1.8958   5   A   1.8958   5   A   1.8958   5   A   1.8958   5   A   1.8958   6   A   1.8958	B'   150 °C	2096.1	5	-v1	<del> </del>		n-Heptane	
No.   No.		<del></del>	+	B to				
Ac  313 to					·			
Bc t <sub>c</sub> °C   2261.2   5   c <sub>p</sub> liq. °K   c <sub>p</sub> vap. °K   c <sub>p</sub> vap. °K   c <sub>p</sub> vap. T <sub>R</sub> = 0.75 T <sub>C</sub>   c <sub>v</sub> vap.    **grams/100 grams solvent**  **Grams/100 grams/	Ac  313 to							
Cryos. A° consts. B° c <sub>p</sub> vap. °K  t <sub>e</sub> °C F 297.74 5 c <sub>v</sub> vap.  T <sub>R</sub> = .0.75 T <sub>c</sub> * grams/100 grams solvent  REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det. data 5-Calc. by formula  SOURCE: API  PURIFICATION: API	Bc tc C					$\vdash$	1	
consts. B°		231.3	+	•				
TR = 0.75 Tc *grams/100 grams solvent  REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det. data 5-Calc. by formula  SOURCE: API  PURIFICATION: API				p vap. K				
TR = 0.75 Tc	te °C F	297.74	5	c <sub>v</sub> vap.				
SOURCE: API PURIFICATION: API		Tc					grams/100 gra	ms solvent
PURIFICATION: API	REFERENC	ES: 1-Dow	2-A	PI 3-Lit. 4-	Calc, from de	t. de	ata 5-Calc. by for	mula
	SOURCE:		API					
LITERATURE REFERENCES:	PURIFICAT	ION:	API					
	LITERATU	RE REFERE	NCES	<b>:</b>				

No. 10 STRUCTURAL FORMULA NAME 1, 6-Dimethylnaphthalene Molecular C12H12 Ref. Molecular Mole Weight 156.216 % Pur Ref. Ref. Ref. F.P. C F.P. 100% -14. dt/dP f to °C/mm g °K. 25°C 728.2 0.0607 B. P. \*C h ВP 760 mm 263. 2 0.0363 5 ť 100 to 185.7 5 g' °K 30 151.4 5 30 mm 0.8611 5 125. 10 5 h' AHm cal/g 81 5 to m ΔHv cal/g Pressure •K n 25°C 106.49 mm 25°C 0.0146 0 30 mm 88,76 5 1463. t. 5 BP 5 74.62 to Density g/ml 20°C m te (d, e) 70.89 5 •K n' 1.003 2 70.51 5 ٥' 0.999 25 2  $d_4^t$ ΔHv/T 5 30 0.995 19.47 4 Surface tension 1 150 to 107.93 5 1.019 8 4 dynes/cm. 20°C 39.72 <u>| 29</u>0 | 20 <u>•c</u> 0.1267 5 Ъ -0.038 4 30 38.47 37.25 5 to 109.99 40 5 Ref. Index e' i 150 °c 0.1403  $\mathbf{n}_{\mathbf{D}}$ 20°C 1,6073 [P] Parachor d<sub>c</sub> g/ml 0,330 5 25 1.6051 20°C vc ml/g tc °C 3.025 5 30 1.6021 4 30 505. 5 40 "C" 0.7865 4 Pç 24170. 5 mm Sugd 391.0 2 MR (Obs.) 53.8 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 53.421 25°C 1.0000 5 (nD-d/2) 1.1058 2 30 mm 1.0000 Dispersion 290. 2 Dielectric 2.583 5 BP 0.9465 5 Flash Point °C 0.9249 A 150 to 7,0478 5 Fire Point 0.24 B 1310°C 1846. M Spec. С 180. ΔHc kcal/m Ultra V ΔHſ A\* | 150 to 1.5118 X-Ray Dif. ΔFf B\* 1300 °C 1744. Infrared ĸ Viscosity Solubility in c centistokes Acetone 00 to ·c Carbon tet. œ Benzene A' | 20 to 7.3988 Ether œ B! 나와 'C 2086. n-Heptane œ B<sup>V</sup> A<sup>V</sup> C' 201. to Ethanol œ •c A'\* Water A'\* 20 to B'\* 150 °C 1.8953 5 (BV) Water in 1989. to (AV) Ac | 310 to 7.4392 5 °C Bc tc\_C 2250. 5 cp liq. ۰ĸ Сc 231. Cryos. A. c<sub>p</sub> vap. •ĸ consts. B° t, \*C c<sub>v</sub> vap. F 295,47 5  $TR = 0.75 T_c$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

Mole % Pur.	rr			STRUCTURAL FORMULA			
	Ref.	Molecul Formula	C <sub>12</sub> H <sub>12</sub>	Molecular Weight 156.2	16	H <sub>3</sub> C	
		Ref.			Ref.		Re
F. P. *C	-13. <sup>‡</sup>	2	dt/dP			f to	
F.P. 1009	6		°C/mm			g  *K	
B. P. *C	_		25°C	728.2	5	h i	
760 mm	263.	2	BP	0.0608	5		
100	185.7	5	t <sub>e</sub>	0.0363	5	f' to	
30	151.4	5	30 mm	0.8611	5	g' <u>*K</u>	1
10 1	125. 81.	5	ΔHm cal/g		1	h'	
	<del>  •••</del>		ΔHv cal/g			m to	Ì
Pressure mm 25°C	0.01	46 5	25°C	106, 49	5	n   •K	- 1
t <sub>e</sub>	1463.	5	30 mm	88.76	5		
Density			BP	74.62	5	m¹ to	
g/ml 20°0	1.00	3 2	t <sub>e</sub> (d, e)	70.89 70.51	5	n'	
t 25	0.99	9 2	ΔHv/Te	19.47	5		
4 30	0.99	5 4		<del> </del>	+	Surface tension	
	1.01		d 150 to e 290 °C	107.93	5	dynes/cm. 20°C   39.	
<u>b</u>	-0.03	8 4	1 20 to	0.1267	5	30 38.	
Ref. Inde	_	_	e'   150 °C	0.1403	5	40 37.	25 5
<sup>n</sup> D 20°0			d <sub>c</sub> g/ml	0,330	5	Parachor [P]	
30	1.60		v <sub>c</sub> mi/g	3,025	5	20°C	ĺ
"C"			ړ <b>.</b> •C	505.	5	40	
	0.78		P <sub>c</sub> mm	24170.	5	Sugd. 391.	0 5
MR (Obs. MR (Calc.		1 5	PV/RT		1	Exp. L.1.%/wt.	
(nD-d/2)	1,10		25°C	1.0000	5	u.	-
Dielectric			30 mm BP	1.0000	5	Dispersion 290.	2
	<del></del>		t <sub>e</sub>	0.9465	5	Flash Point °C	
A 150 to B 310 °C		78 5	tc	0.24	5	Fire Point	
c	180.	5	ΔHc kcal/m	<del>†</del>	+-	M. Spec.	1
A* 150 to	1,51	18 5	ΔHf			Ultra V. X-Ray Dif.	
B*  300 °C		5	ΔFf			Infrared	
к ——	-		Viscosity	1		Solubility in +	
t,	_		centistokes	İ	1	Acetone co	- 1
			∥ <b>ፇ •</b> ℃		1	Carbon tet. 00	
A'   20 to		88 5	1		ŀ	Benzene co	
B' 150 °	2086.	5		<del> </del>	↓	Ether co	
C'	201.	5	B <sup>V</sup> to A <sup>V</sup> C	1	1	Ethanol co	1
A1# 20 to	1,89	53 5		_[		Water	- 1
B'* 150 *		5	(B <sup>V</sup> )  to	1		Water in	-+
Ac  310 to	7,43	92 5	(A <sup>V</sup> )  °C				-
Bc tc	2250.	5		1	T	1	
<u> </u>	231.	5	P	İ	-		
Cryos, A consts, B			c <sub>p</sub> vap. *K				
te °C F	295.47	5	c <sub>v</sub> vap.	1			]
$T_R = 0.$	75 T <sub>c</sub>					grams/100 grams s	olvent
REFEREN	CES: 1-D	ow 2-A	PI 3-Lit. 4-	Calc. from d	et. da	ata 5-Calc, by formula	·
SOURCE:		API					
PURIFICA	TION:	API					
LITERAT	URE REF	ERENCE	S:		*		

No. 12 STRUCTURAL FORMULA NAME 1.8-Dimethylnaphthalene H<sub>3</sub>Ç ÇH3 Ref. Molecular Molecular Mole  $C_{12}H_{12}$ Weight 156.216 % Pur. Formula Ref. Ref Ref F.P. °C dt/dP 65 f °C/mm °K g 25°C 994.6 B. P. \*C h BP 0.0616 5 760 mm 270. 2 ſ 5 0.0366 to 100 191.6 5 g' •ĸ 30 156.8 5 30 mm 0.8738 5 10 130.1 h' AHm cal/g 85.4 5 to •K ΔHv cal/g Pressure n 25°C 108.06 0.0105 mm 25°C 30 mm 5 1478. 89.71 t<sub>e</sub> 5 BP 75.34 5 Density g/ml 20°C m' to ١ te te (d, e) 71.47 5 •ĸ 'n 1.003 5 71.10 5 ۰,  $\mathbf{d_4^t}$ 25 0.999 ΔHv/Te 5 19.36 30 0.995 ? Surface tension 160 109.61 5 to 1.0190 ? dynes/cm. 20°C 39.72 1 300 •c . 0.1269 Ъ -0.0380 ? á۰ 38.47 37.25 30 5 15 111.55 40 5 Ref. Index ē' 160 0.1393 5 20°C n<sub>D</sub> P d g/ml vc ml/g tc °C Parachor 0.30 5 25 20°C 3.333 5 30 30 515. 5 40 "C" P<sub>c</sub> mm 24145. 5 Sugd. 391.0 5 MR (Obs.) PV/RT Exp. L. 1. %/wt. MR (Calc.) 53.421 5 25°C 1.0000 5 (aD-d/2)30 mm 1.0000 Dispersion Dielectric 0.9439 BP 5 Flash Point °C 0.9211 A 150 to t. 7.0564 5 Fire Point tc 0.245 1320 °C 1879. M Spec. C 180. ΔHc kcal/m Ultra V ΔHſ A\* | 150 to 1.51925 X-Ray Dif. ΔFf B\* 310 °C 1777.1 Infrared Viscosity Solubility in centistokes Acetone to Carbon tet. •c Bensene A' | 25 to 7.40789 Ether B' 150 °C 2123.2 n-Heptane B<sup>V</sup> | C' 201.2 Ethanol to •c Water A1# 25 to 1.90067 (BV) Water in B'\*150 •c 2025.6 to (AV) Ac | 320 to 7.45003 •c Bc tc\_C 2291.6 cp liq. •ĸ 232.0 Cryos. A. •ĸ c<sub>p</sub> vap. consts. B. r. C c, vap. F 303.43 5 T<sub>R</sub> = 0.75 T grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API **PURIFICATION:** API LITERATURE REFERENCES:

NAME	2, 3-Dimethylnaphthalene					STRUCTURAL FORMU			
Mole % Pur.		lecul:		СН3 СН3					
		Ref.			Ref.		Ref.		
F. P. *C	105.0	2	dt/dP			f to			
F.P. 100%			*C/mm	i	1 1	g•K			
B. P. *C	1		25°C	907.1	5	h l			
760 mm	268.	2	BP	0.0614 0.0365	5	f' to	$\neg$		
100 30	189.9	5	t <sub>e</sub> 30 mm	i		g'  • <u>K</u>	į.		
10	155.2 128.7	5		0.8703	5	h'	1		
1	84.1	5	ΔHm cal/g	<u> </u>	$\perp$	m to			
Pressure			ΔHv cal/g		ا ـ ا	n ek	ļ		
mm 25°C	0.0116	5	25°C 30 mm	107.58 89.42	5	•	- 1		
t <sub>e</sub>	1473.	5	BP	74.92	5	m¹ to			
Density			t	71.28	5	m' to *K			
g/ml 20°C	1.003	5	t (d, e)	70.66	5	;;			
dt 25	0.999 0.995	5	ΔHv/T <sub>e</sub>	19.39	5				
	<del> </del>	-	d 155 to	109.36	5	Surface tension	_		
a b	1.019	5	300 <u>•</u> C	0.1285	5	dynes/cm. 20°C   39,72	5		
	-0.030	-	d'   15 to	111.07	5	40 37,25	5		
Ref. Index			e'   155 °C	0, 1395	5	Parachor [P]	- <del>  -</del>		
n <sub>D</sub> 20°C			d <sub>c</sub> g/ml	0.304	5	20°C	1		
30	İ		v <sub>c</sub> ml/g t <sub>c</sub> °C	3.29 512.	5 5	30	- 1		
"C"			, <b>-</b>		1 1	40	1_		
MR (Obs.)	<u> </u>		P <sub>c</sub> mm	24129.	5	Sugd. 391.0	5		
MR (Calc.)	53.421	5	PV/RT 25°C		1 _ 1	Exp. L.1.%/wt.	1		
(nD-d/2)		_	30 mm	1.0000	5	u. Dispersion			
Dielectric			BP	1.0000 0.9422	5				
A 155 to	7,0527	5	t.	0.9221	5	Flash Point C Fire Point	ı		
B 315 °C	1869.	5	tc	0.253	5		-+-		
С	180.	5	AHc kcal/m			M. Spec. Ultra V.	- 1		
A# 155 to	1.51601	5	ΔHf ΔFf			X-Ray Dif.	1		
B*[310 °C	1767. 2	5		<del> </del>	╁──┤	Infrared			
K			Viscosity centistokes	l		Solubility in +			
t <sub>k</sub> -to	· [		η ·c	1		Acetone			
€ °C			•	İ		Carbon tet. Benzene			
A1 20 to	7.40396	5	Ì	1		Ether	ı		
B' 155 °C	2111.9	5	_v	<del>                                     </del>	<del>                                     </del>	n-Heptane			
C'	201.1	5	B <sup>V</sup> to A <sup>V</sup> C	1		Ethanol Water			
A'* 20 to	1.89816	5		-		Water in			
B'* 155 °C	<del></del>	5	(B <sup>V</sup> )  to						
Ac 315 to	7.44557	5	(A <sup>V</sup> )  °C	<u> </u>	<b>↓</b>	l l			
Bc tc C	2279. - 231.7	5	c <sub>p</sub> liq. •K	1			- 1		
Cryos. A*	+	Ť	41 -	1	1				
consts, B	1		c <sub>p</sub> vap. *K						
te C F	301.16	5	c <sub>v</sub> vap.				- 1		
T <sub>R</sub> = 0.75 T <sub>C</sub> grams/100 grams solvent									
		2-A	PI 3-Lit. 4-	Calc. from de	et. da	ta 5-Calc. by formula			
SOURCE:			\PI						
PURIFICA	TION:		NPI			······································			
	RE REFERE								
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No. 14 STRUCTURAL FORMULA NAME 2, 6-Dimethylnaphthalene Molecular C12H12 Ref. Mole Molecular % Pur. Weight 156, 216 Ref Ref Ref. F.P. C 112.0 dt/dP f °C/mm g °K 25°C 0.0695 B. P. \*C h ВP 0.0606 760 mm 262. 184.84 2 0.0363 5 ſ 100 to 5 g' •K 30 150.6 5 30 mm 0.8594 5 10 124.4 5 h AHm cal/g 80.4 1 5 to ΔHv cal/g Pressure n •ĸ 25°C 106.25 mm 25°C 0.1531 o 30 mm 88.61 5 1461. 5 ŧ, BP 74.51 5 5 to m' Density g/ml 20°C 70.80 te (d, e) •ĸ n' 1.003 5 70.42 5 0 25 30 ΔHv/Te d4 0.999 5 5 19.49 0.995 5 Surface tension 150 to to 107.67 1.019 5 dynes/cm. 20°C 39.72 5 e <u>| 300</u> 0.1266 Ъ 30 38.47 37.25 5 ď 20 to 109.80 •' 40 Ref. Index 150 0.1404 n<sub>D</sub> 20°C [P] d g/ml vc ml/g tc °C Parachor 0.308 5 25 20°C 3.25 5 30 30 504. 5 40 "C" P<sub>c</sub> mm 24165. 5 Sugd. 391.0 5 MR (Obs.) PV/RT Exp. L.1.%/wt. MR (Calc.) 53,421 5 25°C 1,0000 5 (nD-d/2) 30 mm 1.0000 Dispersion 5 Dielectric BP 0.9469 Flash Point °C 0.9255 150 to 7.0460 Fire Point tc 0.253 B [310 °C 1841. 5 M Spec. C 180, 5 ΔHc kcal/m Ultra V ΔHf A\* 150 to B\* 310 °C 1.5101 5 X-Ray Dif, AFf 1739.3 Infrared Viscosity Solubility in c centistokes Acetone to Carbon tet. ·c Benzene A' | 20 to 7.3968 Ether B' (150 °C 2080.3 n-Heptane  $\mathbf{B}^{\widetilde{\mathbf{v}}}$ C' 200.8 to Ethanol ÃV i A<sup>1</sup>\* 20 to B<sup>1</sup>\* 150 °C •c Water 1.8940 5 (BV) Water in 1983.8 to (AV) Ac | 310 to 7.4372 5 °C •c Bc Ltc\_ 2243.9 cp liq. ۰ĸ 230.9 Cryos. A. c<sub>p</sub> vap. •K consts. B° c, vap. te .C F 294.33 5  $T_R = 0.75 T$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det. data 5-Calc, by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

NAME	2,	7-Dir	neth	ylnap	hthalene		_	STRUCTURAL	FORMU	LA
					T		_	H <sub>3</sub> C	СН3	
Mole % Pur.		Ref.	For	ieculi mula	C <sub>12</sub> H <sub>12</sub>	Molecular Weight 156, 2	16	$\sim$		
				Ref			Ref.			Ref
F, P. °C		98.0		2	dt/dP		1	f to		1
F.P. 1009	-			$\vdash$	*C/mm 25*C	728, 2	5	g ' <u>K</u>	1	j
B. P. °C 760 mm	2	63.		2	BP	0.0607	5	h		+-
100	1	85.7		5	t <sub>e</sub>	0.0363	5	f' to		İ
30 10		51.4 25.1		5	30 mm	0.8611	5	h'		
11		81.0		5	ΔHm cal/g	<del> </del>	-	m to		+
Pressure mm 25°C		0.01	46	5	ΔHv cal/g 25°C	106.49	5	<u>n                                    </u>		
mm 25 C	14	63.	*0	5	30 mm BP	88.76 74.62	5 5			
Density	<u> </u>			$\Box$	t	70.89	5	m' to		
g/ml 20°C	7	0.99		5	t <sub>e</sub> (d, e)	70.51	5	",	İ	
dt 25 4 30	Ì	0.99		5	ΔHv/T <sub>e</sub>	19.47	5	Surface tension		+
•	T	1.01		5	d 150 to e 300 °C		5	dynes/cm. 20°C	39.72	5
<u>b</u>	_	-0.0	8	5	d' 15 to	109.99	5	30 40	38.47 37.25	5
Ref. Index					e'   150 °C	+	5	Parachor [P]	31.25	+-
D 25					d <sub>c</sub> g/ml	0.308 3.25	5	20°C		-
"C"	+			$\vdash$	vc ml/g tc °C	505.	5	30 40		
	-			$\vdash$	P <sub>c</sub> mm	24170.	5		391.0	5
MR (Obs.) MR (Calc.		53.42	21	5	PV/RT			Exp. L.1.%/wt.		
(nD-d/2)					25°C 30 mm	1.0000	5 5	u. Dispersion		İ
Dielectric					BP	0.9465	5	Flash Point C	ļ	+
A 150 to B   310 °C		7.04 46.	178	5	t e t c	0.9249 0.253	5	Fire Point		
c		80.		5	ΔHc kcal/m	1		M. Spec. Ultra V.		
A# 150 to			179	5	ΔHf ΔFf		1	X-Ray Dif.		
B*[300 °C	- 17	44.3		5	Viscosity		+	Infrared	ļ	_
°				}	centistokes			Solubility in Acetone		-
t <sub>k</sub> to					η •c			Carbon tet.		1
A'   25 to	+	7.39	875	5				Benzene Ether		j
B' 150 °C	20	85.9 00.9		5	BV I	+	+	n-Heptane		1
A'# 25 to	+-	1.89	1525	5	B <sup>V</sup> to A <sup>V</sup> O			Ethanol Water		
B'* 150 °C			,,,,,	5	(B <sup>V</sup> )  to	-		Water in	ļ	
Ac  310 to		7.43	919	5	(A <sup>V</sup> )  °C					
Bc tc C	22	50.0 31.0		5	c <sub>p</sub> liq. °K	:				- 1
Cryos. A	-+-			<del>  </del>	c <sub>p</sub> vap. *K					
consts. B	4			$\sqcup$	c vap.	1		#		
t <sub>e</sub> °C F		95.47		5	V F.	1	<u></u>	grams/100 gra	me solve	<u> </u>
			Dow	2-A	PI 3-Lit. 4	-Calc, from d	et. da			- 44.5
SOURCE:					API					
PURIFICA	TION	<b>1</b> :			\PI					
LITERATU			ERE							

No. 16 STRUCTURAL FORMULA l-n-Propylnaphthalene NAME C<sub>3</sub>H<sub>7</sub> Molecular Mole Ref. Molecular  $C_{13}H_{14}$ Weight 170, 242 % Pur Formula Ref Ref. Ref. F.P. -10 dt/dP to F.P. 100% °C/mm •ĸ g 25°C ·5 1111.96 B. P. °C h BP 0.0619 5 760 mm 272.5 2 t<sub>e</sub> 0.0366 5 ť to 100 193.7 5 •ĸ g' 30 158.7 5 30 mm 0.8784 5 10 131.9 5 h' AHm cal/g 86.9 to AHv cal/g m Pressure •ĸ 25°C 30 mm n 99.68 mm 25°C 0.0094 o 82.63 5 t<sub>e</sub> 1483. 5 BP 69.36 5 Density m' to te te (d, e) 65.72 5 5 g/ml 20°C •K 0.9918 2 65.42 0.9882 2  $d_4^t$ AHV/T 19.31 5 30 0.9846 4 Surface tension 1 160 to 101.15 1.0062 -0.0<sub>3</sub>72 44 dynes/cm. 20°C 39.38 5 310 \*C 0.1166 102.86 ь 30 38.25 5 25 5 40 37.14 5 Ref. Index •1 •c 0.1275 160 5 1.5952 20°C 2 [P]  $\mathbf{n}_{\mathbf{D}}$ Parachor 0.30 5 d<sub>c</sub> g/ml 25 1.5930 2 20°C vc ml/g tc °C 5 3.33 30 1.5904 4 30 508. 5 40 "C" 0.7804 4 21914. 5 P<sub>c</sub> mm Sugd. 430.0 5 MR (Obs.) 58.34 2 PV/RT Exp. L. 1. %/wt. MR (Calc.) 58.039 25°C 1.0000 5 (nD-d/2) 1.0993 2 30 mm 1.0000 Dispersion 265. 2 0.9432 Dielectric 2.545 5 BP 5 Flash Point °C t<sub>e</sub> 0.9196 5 A 155 to Fire Point 7.0594 5 tç 0.255 1890.8 1335 °C 5 M Spec. C AHc kcal/m 180 5 Ultra V. ΔHf A\* 155 to 1.55935 5 X-Ray Dif. ΔFf B\* 320 °C 1788.9 Infrared ĸ Viscosity Solubility in centistokes Acetone to Carbon tet. ٠c Benzene 20 to 7.41108 Ether \_155 °C 2136.5 n-Heptane ВŸ C١ 201.3 Ethanol •c Water A1# 20 to 1.93970 5 Water in B'# 155 °C (BV) 2038.6 to Ac | 335 to 7.58084 5 (AV) °C Bc |\_tc\_\* •c 2467.5 cp liq. ۰ĸ Cc 253.5 Cryos. A\* •ĸ c<sub>p</sub> vap. consts. B° c, vap. te °C 306,27 5  $T_R = 0.78 T_c$ grams/100 grams solvent REFERENCES: 1-Dow 4-Calc, from det. data 5-Calc, by formula 2-API 3-Lit. SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

NAME	Z-n-Pr	opylna ph	thalene			STRUCTURAL FOR	MULA
Mole	D. (			Malagulan	$\dashv$	C <sub>3</sub> H <sub>7</sub>	•
Mole % Pur.	Ref.	Formula		Molecular Weight 170.2	42	•	
		Ref.		T	Ref.		Re
F. P. *C	-3,	2	dt/dP			f to	
F.P. 100%			°C/mm			g* <u>K</u>	
B. P. *C			25°C BP	1162.6	5	h	
760 mm 100	273.5 194.6	5	t	0.0367	5	f¹ to	
30	159.5	5	30 mm	0.8802	5	g' <u>*K</u>	l
10 1	132.6 87.6	5	ΔHm cal/g			h¹ i	
Pressure	+		ΔHv cal/g			m to	i
mm 25°C	0.008	39 5	25°C 30 mm	99.88 82.76	5	"   <u>-</u> -	1
t <sub>e</sub>	1485.	5	BP BP	69.37	5	<del></del>	— <u></u>
Density			t <sub>e</sub> ,	65.77	5	m' to K	
g/ml 20°C	0.973		te (a, e)	65.38	5	0'	
d <sub>4</sub> 25 30	0.969		ΔHv/T <sub>e</sub>	19.29	5	Surface tension	
	0.991	4 4	d 160 to e 310 °C	101.49 0.1174	5	dynes/cm. 20°C 37.	
b	-0.03	72 4	d 310 °C to		5	<b>8</b> 30 36.	
Ref. Index		.   .	e'   160 °C		5	40 34.	77 5
<sup>n</sup> D 20°C	1.585		d <sub>c</sub> g/ml	0.302	5	Parachor [P] 20°C	
30	1.582		v_mi/g	3.31 506.9	5	30	İ
"C"	0.782	25 4	tc °C P <sub>c</sub> mm	21370.	5	40 Sugd. 430.	0 5
MR (Obs.)		2	PV/RT	12.3.0.	<del>                                     </del>	Exp. L.1.%/wt.	-
MR (Calc. (nD-d/2)	58.039 1.098		25°C	1.0000	5	u. u.	
Dielectric	<del></del>	+	30 mm BP	1.0000	5	Dispersion 265.	2
A 160 to	7.060	<del></del>	t <sub>e</sub>	0.9417 0.9190	5	Flash Point *C Fire Point	
B   335 °C		5	t <sub>c</sub>	0.247	5		
c	180.	5	AHc kcal/m			M. Spec. Ultra V.	İ
A* 160 to	1.560		ΔHf ΔFf		1	X-Ray Dif.	
B* _315 °C	- 1793.6	5	Viscosity	<del> </del>	+	Infrared	
c	_	İ	centistokes			Solubility in Acetone	- 1
tk to			η <b>•</b> c			Carbon tet.	
A'  20 to		227 5				Benzene	
B' 160 °C		5	<u> </u>		┼—	Ether n-Heptane	1
C'	201.4	5	B <sup>V</sup> to C			Ethanol	
A'* 20 to			<del></del>	-	1	Water Water in	l
B'* 160 °C	<del></del>	5	(B <sup>V</sup> )  to				
Acl 335 to Bc t <sub>c</sub> °C		130   5	(A <sup>V</sup> )  °C	<del> </del>	-	1	
Cc	252.9	5	c <sub>p</sub> liq. *K		Ì		
Cryos. A° consts. B°			c <sub>p</sub> vap. *K				
t <sub>e</sub> °C F	307.41	5	c <sub>v</sub> vap.				
$T_R = 0.7$	8 T <sub>c</sub>					grams/100 grams s	olvent
		ow 2-A	PI 3-Lit, 4	Calc, from d	et. da	ata 5-Calc. by formula	
SOURCE:			API				
PURIFICA	TION:		API				
LITERATU	RE REFE	ERENCE	S:				

No. 18 STRUCTURAL FORMULA l-n-Butylnaphthalene NAME C<sub>4</sub>H<sub>9</sub> Molecular C14H16 Molecular Mole Ref. Weight 184.268 % Pur Ref Ref. -19,76 F.P. dt/dP f to F.P. 100% °C/mm g <u>•</u>K 25°C 2370.9 B. P. \*C h 0.0638 5 BP 760 mm 289.34 0.0371 5 ſ١ t<sub>e</sub> 100 208.0 to 5 g' •ĸ 30 171.8 5 30 mm 0.9087 5 10 144.1 5 h' ∆Hm cal/g 97.5 m to ΔHv cal/g Pressure •ĸ n 95.32 25°C 5 mm 25°C 0.0042 o 30 mm 78.33 te 1516. 5 BP 65.37 5 m' to Density 5 te te (d, e) 61,84 n' ٠ĸ g/ml 20°C 0.97673 61.39 5 ٥' 25 0.97324  $\mathbf{d_{4}^{t}}$ ΔHv/T 19.03 5 30 0.96975 4 Surface tension 1170 97.27 5 to 0.99069 -0.0,698 . dynes/cm 20°C 38.19 5 1 330 •c 0.1103 5 ъ e 30 37.11 36.06 5 20 to I 98,22 1 40 170 Ref. Index e' 0.1158 •c 5 1.5819 20°C [P] n<sub>D</sub> ā<sub>c</sub> Paracher g/ml 0.302 5 25 1.5798 2 20°C ml/g 5 3.31 1.5774 t<sub>c</sub> 30 4 30 518.6 5 40 "C" 0.7761 4 P mm 19440. 5 Sugd. 469.0 5 MR (Obs.) 62.953 PV/RT Exp. L.1.%/wt. MR (Calc.) (nD-d/2) 62.657 1.0000 5 25°C u, 1.0935 2 30 mm 1.0000 5 Dispersion 253. 2 Dielectric 2,502 5 BP 0.9346 5 Flash Point °C t<sub>e</sub> 0.9104 5 7.0814 1971.5 A 170 to Fire Point 0.240 tc B 345 °C M Spec. 180. 5 С AHc kcal/m Ultra V ΔHf 1.61376 A\* | 170 to 5 X-Ray Dif. ΔFf B+ 335 °C 1869.5 Infrared Viscosity Solubility in c centistokes Acetone to t<sub>x</sub> | Carbon tet •c Benzene A1 25 to 7.43447 Ether B' 170 °C 2227.7 n-Heptane ВŶ C 202.2 5 Ethanol to ÃV i •c Water A'\* 25 to B'\* 170 °C 1.98763 5 Water in (BV) 2127.1 tο Ac | 345 to 7.60666 (AV) 5 °C Bc |\_tc\_ •c 2561.0 liq. Сp ۰ĸ Cc 253.3 Cryos. A. c<sub>p</sub> vap. •K consts. B° te °C c<sub>v</sub> vap. 325.43 F 5  $T_{\mathbf{R}} = 0.78 \, T_{\mathbf{R}}$ grams/100 grams solvent REFERENCES: 1-Dow 4-Calc. from det. data 5-Calc. by formula 2-API 3-Lit. SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

No. 19 2-n-Butylnaphthalene NAME STRUCTURAL FORMULA C<sub>4</sub>H<sub>9</sub> Molecular C14H16 Mole Ref. Molecular % Pur. Weight 184.268 Ref. Ref. F.P. °C F.P. 100% -5. 2 dt/dP f to °C/mm 25°C ١ ۰ĸ g 2673.0 5 B. P. °C h BP 0.0642 5 760 mm 292. 2 t<sub>e</sub> 0.0372 5 ſ١ to 100 210.2 <u>•к</u> g' 173.9 5 30 30 mm 0.9135 5 146.0 10 h' ∆Hm cal/g 5 99.2 to ∆Hv cal/g Pressure n •ĸ 25°C 95.83 0.0037 mm 25°C o 30 mm 78.65 1521. 5 t<sub>e</sub> ВP 5 65.52 m' to Density 62,00 5 te (d, e) n' •K g/ml 20°C 0.9659 61.47 5 o' 0.9624 2  $d_4^t$ ΔHv/Te 18.99 5 30 0.9589 4 d 175 Surface tension 97.96 to 5 0.9799 36.53 d 330 20 a b <u>•с</u> dynes/cm. 20°C 0.1111 5 -0.0,70 35.48 4 30 5 to 98.72 5 34.46 40 Ref. Index e' 1175 ٠c 0.1155 5 1.5776 <sup>n</sup>D 20°C [P] Parachor d g/ml vc ml/g t °C 3.01 5 1.5755 2 25 20°C 3.31 5 30 1.5731 4 30 <sup>t</sup>c 520,2 5 40 "C" 0.7794 4  $P_c$  mm 469.0 5 19060. 5 Sugd MR (Obs.) 63.27 2 PV/RT Exp. L.1.%/wt. 62.657 MR (Calc.) 1.0000 25°C (nD-d/2)1.0946 2 30 mm 1.0000 Dispersion 253. 2 Dielectric 2,489 5 5 BP 0.9325 Flash Point C 0.9087 A 170 to 7,0848 ţe 5 Fire Point 5 0.235 1984.3 B 1345 °C M. Spec. C 180. 5 ΔHc kcal/m Ultra V ΔHf A\*| 170 to 1.61725 5 X-Ray Dif. ΔFf B\*[330 °C 1882.5 Infrared Viscosity K Solubility in centistokes Acetone to ٠ċ Carbon tet. Benzene A' | 25 to 7.43808 5 Ether B' 1170 °C 2242.2 n-Heptane B<sup>v</sup> | 202.3 Ethanol to °C A1# 25 to Water 1.98974 5 Water in B'+170 °C (B<sup>V</sup>)| 2141.2 to Ac| 345 to (A<sup>V</sup>)! 7.60749 5 °C Bc tc °C 2571.9 c<sub>p</sub> liq. ۰ĸ Сс 252.8 Cryos. A. cp vap. ۰ĸ consts. B° c vap. te °C 328.45  $T_{R} = 0.78 T_{c}$ grams/100 grams solvent 5-Calc. by formula REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data SOURCE: API **PURIFICATION:** API LITERATURE REFERENCES:

No. 20 NAME 1-n-Pentylnaphthalene STRUCTURAL FORMULA C<sub>5</sub>H<sub>II</sub> Molecular C15H18 Ref. Molecular Mole Weight 198.294 % Pur Formula Ref. Ref Ref. F.P. C -22. 2 dt/dP f to °C/mm ۰ĸ g 25°C 8350. B. P. °C h BP 0.0650 760 mm 307. 2 f' 5 0.0369 to 100 224.1 5 •ĸ g' 30 187.3 5 30 mm 0.9242 5 10 159.1 5 h' ΔHm cal/g 1 112 5 to m ∆Hv cal/g Pressure n •K 25°C 98.01 mm 25°C 0.0011 30 mm 76.66 te 1565. 5 63.34 5 BP Density g/ml 20°C m to 59.73 5 te te (d, e) •ĸ n' 0.9656 2 59.06 5 o'  $d_4^t$ 25 0.9622 ĂHv/T<sub>e</sub> 5 19.14 30 0.9588 4 Surface tension 1 185 97,50 5 0.9792 to 37.45 dynes/cm. 20°C 340 •c 0.1113 5 Ъ 4 36.40 35.38 30 25 101.30 5 40 Ref. Index •' 185 0.1316 1.5725  $\mathbf{n}_{\mathbf{D}}$ 20°C 2 [P] Parachor d v g/ml 0.296 5 25 1.5704 20°C ml/g 3.38 30 1,5681 4 'c 30 •c tc 531.0 5 40 "C" 0,7732 4 P<sub>c</sub> mm Sugd. 508.0 17802. 5 5 67.62 MR (Obs.) 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 67.275 25°C 1,0000 (nD-d/2)1.0897 2 30 mm 1.0000 Dispersion 243. 2 Dielectric 2,473 5 BP 0.9328 5 Flash Point °C 185 to 7.0743 t<sub>e</sub> 0.9094 5 Fire Point 0.230 1360 °C 2000. M Spec. C 170. AHc kcal/m Ultra V ΔHf A\* | 185 to 1.6294 5 X-Ray Dif. ΔFſ B+ 355 °C 1899. Infrared Viscosity Viscos., centistokes °C Solubility in Acetone to Carbon tet. •c Bensene A' | 20 to 7.4269 Ether B' (185 °C 2260. n-Heptane B<sup>V</sup> | 193. to Ethanol •c Water A1# 25 to 2.0131 Water in B'\* 185 °C (BV) 2164. to Ac | 360 to 7,6385 (AV) 5 °C Bc tc\_C •c 2645. cp liq. ۰ĸ 250. Cryos. A. c<sub>p</sub> vap. ۰ĸ consts, B° c, vap. te .C 345.51 5  $T_{R} = 0.79 T_{C}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

NAME	2-n-Pe	ntylnaph	thalene			STRUCTURAL	FORMULA	
	2-n-Ar	nylna phtl	halene			^		
Mole % Pur.	Ref.	Molecul Formul		Molecular Weight 198.2	94		) <sup>C<sub>5</sub>H<sub>11</sub></sup>	
		Ref		T	Ref.		Re	eſ.
F. P. *C	-4.	2	dt/dP	1		f to		
F.P. 100%			*C/mm		1	g°K		
B. P. *C	1	i .	25°C BP	9137.5	5	h		
760 mm 100	310. 226.4	5	١.	0.0373	5	f' to		
30	189.3	5	30 mm	0.9317	5	g' <u>K</u>		
10 1	160.9	5	ΔHm cal/g			h'		
Pressure	113.2		ΔHv cal/g			m   to		
mm 25°C	0.03	99   5	25°C	98.19	5	n   •K	ţ	
te	1565.	5	30 mm BP	76.69 63.25	5	<b> </b>		
Density		.	l t	59.41	5	m' to		
g/ml 20°C	0.95 0.95		te (a, e)	58.91	5			
d <sup>t</sup> 25 4 30	0.94		ΔHv/T <sub>e</sub>	18.94	5	Surface Associate		
<b>a</b>	0.96	97 4	d 190 to	97.79	5	Surface tension dynes/cm. 20°C	35.99	5
Ъ	-0.03	68 4	350 °C d' 25 to	0.1114	5	¥ 30	34.98	5
Ref. Index		_	e'   190 °C		5	40	33.99	5_
<sup>n</sup> D 20°C	1.56		d_g/ml	0.296	5	Parachor [P] 20°C	1	
30	1.56		d g/ml vc ml/g tc °C	3.38 533.2	5	30		
"C"	0.77	70 4	t <sub>c</sub> *C P <sub>c</sub> mm	17251.	5	40 Sugd.	508.0	5
MR (Obs.)		2	PV/RT	11.231.	<del>  -</del>		300.0	<u>_</u>
MR (Calc. (nD-d/2)			25°C	1.0000	5	Exp. L.1.%/wt. u.		
	1.09		30 mm	1.0000	5	Dispersion	243. 2	2
Dielectric			BP te	0.9310 0.9041	5	Flash Point *C		
A 1 190 to B   370 °C		5	tc	0.230	5	Fire Point		
c '	170.	5	ΔHc kcal/m	1		M. Spec. Ultra V.		
A# 190 to			ΔHf ΔFf		ľ	X-Ray Dif.		
B*[ 360 °C	1906.5	5	Viscosity	<del> </del>	+	Infrared		
c		1	centistokes		1	Solubility in +		
t <sub>k</sub> $\lceil -t_{\overline{0}} \rceil$			η ·c			Acetone Carbon tet.		
<b>€</b>   °C A'   25 to			4		1	Benzene		
A'   25 to B'   190 °C		17   5			1	Ether n-Heptane		
	192.6	5	B <sup>V</sup> to A <sup>V</sup> C			Ethanol		
A1# 25 to				-1		Water Water in	1	
B'* 190 °C	<del></del>	5	(B <sup>V</sup> )  to			Water 211		
Acl 370 to	7.69	24   5	(A <sup>V</sup> )  °C	<del> </del>	╁	4		
Bc tc C	262.6	5	c <sub>p</sub> liq. *K				; l	
Cryos. A° consts. B°			c <sub>p</sub> vap. *K					
te °C F	348.92	5	c <sub>v</sub> vap.	1	1			
$T_R = 0.8$	0 Т <sub>с</sub>					grams/100 grai	ms solvent	_
		ow 2-A	PI 3-Lit. 4-	Calc. from d	et. da	ata 5-Calc. by for		
SOURCE:			PI					
PURIFICA	TION:		PI					
LITERATU	RE REF							
<b> </b>								

No. 22 l-n-Hexylnaphthalene STRUCTURAL FORMULA NAME C<sub>6</sub>H<sub>13</sub> Molecular C16H20 Molecular Ref. Mole Weight 212.320 % Pur Ref Ref Ref. F. P. \*C -18. 2 dt/dP f \*C/mm 25\*C ۰ĸ g 17328. B. P. \*C h BP 0,0666 760 mm 322. 2 ſ 5 0.0372 237.0 to 100 •ĸ g' 30 199.2 5 30 mm 0.9504 5 10 170.2 h! AHm cal/g 121.4 5 1 to m ١ ΔHv cal/g Pressure n •K 25°C 94.37 mm 25°C 0.0351 5 30 mm 73.25 5 te 1593. 5 60.43 5 BP Density g/ml 20°C to m te te (d, e) 5 5 56.**66** •ĸ 0.9566 'n 56.20 ۰' 0.9532  $d_4^t$ 25 ΔHv/Te 18.92 5 30 0.9498 Surface tension 1 200 d 94.03 0.9702 -0.0368 36.89 35.85 dynes/cm. 20°C e | 365 d' | 25 0.1043 5 <u>.</u>⊂ Ъ 4 5 30 to 97.40 40 34.84 5 e¹ Ref. Index 1 200 0.1213 1.5647 n<sub>D</sub> 20°C [P] Parachor d g/ml vc ml/g tc °C 0.292 1.5626 5 2 25 20°C 3.42 5 30 1.5604 4 30 539.3 5 tc 40 "C" 0.7706 4 P<sub>c</sub> mm 15949. 5 Sugd. 547.0 5 MR (Obs.) 72.26 2 PV/RT Exp. L. 1. %/wt. 71.895 MR (Calc.) 25°C 1.0000 5 2 (nD-d/2) 1.0864 30 mm 1.0000 234. 2 Dispersion 2,448 5 Dielectric ВP 0.9288 Flash Point °C 0.9006 A 200 to 7,1003 te Fire Point 2076. tc 0.228 5 B 375 °C M Spec. C 170 5 AHc kcal/m Ultra V AHf A+ | 200 to 1.6850 5 X-Ray Dif. ΔFf 1975.2 B+ \_375 °C Infrared Viscosity Viscos.., centistokes °C Solubility in c Acetone to ·c Carbon tet. Benzene A' | 25 to 7.4546 Ether 2345.8 B' [200 °C n-Heptane вŸ C 193.3 5 to Ethanol à i •c Water A1# 25 to 2.0620 5 Water in (BV) B1# 200 °C 2247.6 5 to Ac | 375 to 7.7326 5 °C Bc tc\_C 2825. cp liq. ۰ĸ 261.1 Cryos. A. c<sub>p</sub> vap. •K consts. B° c, vap. te °C F 362.57 5  $T_R = 0.80 T_c$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det, data 5-Calc. by formula SOURCE: API **PURIFICATION:** API LITERATURE REFERENCES:

				nalene		STRUCTURAL FORMULA				
Mole	R	ef. Mol	ecula	C <sub>16</sub> H <sub>20</sub>	Molecular	-	$\otimes$	C <sub>6</sub> H <sub>13</sub>		
% Pur.		For		C <sub>16</sub> P <sub>20</sub>	Weight 212.3				<del></del>	
			Ref.		ļ	Ref.			Re	
F.P. °C F.P. 1009		3	2	dt/dP			f to			
	•			°C/mm 25°C	19318.	5	g '°K			
B. P. °C 760 mm	32	4.	2	<b>B</b> P	0.0668	5	h		+	
100		8.8	5	t <sub>e</sub>	0.0372	5	f' to to			
30 10		0.9 1.7	5	30 mm	0.9535	5	h'		1	
1	12	2.8	5	ΔHm cal/g		<del> </del> —	m to		+	
Pressure				ΔHv cal/g 25°C	94.82	5	n •K			
mm 25°C	159	0.0 <sub>3</sub> 45	5	30 mm	73.53	5	0			
Density	1207		H	BP	60.64 56.87	5	m¹ to		$\top$	
g/ml 20°0		0.9479	2	t <sub>e</sub> (d, e)	56.36	5	n'   <u>*K</u>			
d <sub>4</sub> 25		0.9445 0.9411	2 4	AHv/Te	18.93	5			_	
		0.9615	4	d 200 to	94.55	5	Surface tension	25 52	۱.	
a b	-	0.0368	4	le  365 °C	0.1047	5	dynes/cm. 20°C	35.57 34.56	5	
Ref. Index	+			d' 25 to		5	40	33.57	5	
n <sub>D</sub> 20°0		1.5620	2	d <sub>c</sub> g/ml	0, 292	5	Parachor [P]			
25 30		1.5599 1.5577	2 4	v <sub>c</sub> m1/g	3.42	5	20°C			
"C"		0.7742	4	•	540.2	5	40			
MR (Obs.		2.64	2	P <sub>c</sub> mm	15734.	5	Sugd.	547.0	5	
MR (Calc.		1.895	5	PV/RT 25°C	1.0000	5	Exp. L.1.%/wt.			
(nD-d/2)		1.0880	2	30 mm	1.0000	5		234.	2	
Dielectric		2.440	5	BP	0.9280 0.9002	5	Flash Point °C		†	
A 200 to		7.1075	5	te tc	0.228	5	Fire Point		$\perp$	
B  _380 °C	17		5 5	ΔHc kcal/m	+	+-	M. Spec.			
A* 200 to		1.69103		ΔHf	İ		Ultra V. X-Ray Dif.			
B* _370°C		6.86	5	ΔFf		╁	Infrared			
C			l I	Viscosity centistokes			Solubility in +			
t <sub>L</sub> [ to				η •c		1	Acetone Carbon tet.			
*   'C			Ш				Benzene			
A'   25 to B'   200 °C		7.46221 9.38	5 5			ļ	Ether n-Heptane		1	
C' 1-200 3		3.4	5	B <sup>V</sup> to C	Ī		Ethanol			
A'* 25 to		2.06849	5		_		Water			
B'* 200 °C			5	(B <sup>V</sup> )  to		1	Water in		+	
Acl 380 to		7.736 <b>7</b>	5	(A <sup>V</sup> )  °C			1			
Bc tc Cc	26	*. 0.3	5	c <sub>p</sub> liq. *K			1			
Cryos. A'				c <sub>p</sub> vap. *K						
t <sub>e</sub> °C F	-+	4.85	5	c <sub>v</sub> vap.						
$T_R = 0$ .		05	لــــــــــــــــــــــــــــــــــــــ	L	_L	ــــــــــــــــــــــــــــــــــــــ	grams/100 gran	ns solve	nt	
		l-Dow	2-A	PI 3-Lit. 4	-Calc, from d	et. da	ata 5-Calc. by for			
SOURCE:	<del></del>			PI						
PURIFICA	TION			PI					_	
LITERATI		EFERF								
		E		••						

No. 24 STRUCTURAL FORMULA NAME l-n-Heptylnaphthalene C7H15 Molecular C17H22 Molecular Ref. Mole Weight 226.346 % Pur Ref. Ref. Ref F.P. °C F.P. 100% -8 2 dt/dP f to °C/mm <u>•</u>K g 25°C 46169. B. P. \*C 0.0681 h BP 5 340. 760 mm 2 0.0372 5 f to 100 253.0 5 g† 5 0.9779 °K 30 214.1 5 30 mm 10 184.2 5 h' ΔHm cal/g 133.9 to AHv cal/g Pressure •K n 25°C 92.33 mm 25°C 0.0318 0 30 mm 71.06 5 1637. 5 ŧ. 5 58.69 BP Density m to 54.93 5 t (d, e) •ĸ g/ml 20°C 0.9491 2 54.46 5 o' 25 0.9458 ď4 5 AHv/T 18.95 30 0.9425 4 Surface tension d | 215 92.11 5 to 0.9623 dynes/cm. 20°C 36.45 1 385 0.0983 5 Ъ -0.0366 4 35.45 34.47 5 30 to 95.14 25 5 40 e¹ Ref. Index 0.1125 5 20°C 1.5582 [P] n<sub>D</sub> Parachor d g/ml vc ml/g tc °C 0.291 5 25 20°C 1.5561 2 3.43 30 1.5540 4 30 553.1 5 40 "C" 0.7684 4 mm 14865. 5 586.0 5 Sugd. MR (Obs.) 76, 901 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 76.513 25°C 1.0000 (nD-d/2) 1.0836 30 mm 1.0000 Dispersion 226. 2 Dielectric 2,428 5 BP 0.9256 5 Flash Point °C t<sub>e</sub> 0.8965 215 to 7.1631 5 Fire Point 0.224 1405 °C 2184. M Spec. Ultra V. C ΔHc kcal/m 170. ΔHf A\* | 215 to 1.7673 5 X-Ray Dif. ΔFf B+ 395 ℃ 2081.1 Infrared Viscosity Viscour, centistokes °C Solubility in Acetone to Carbon tet. •c Bensene 25 to 7.5213 2467.9 Ether B' 215 °C n-Heptane B C'  $\vec{A}^{v}$ 194.2 5 Ethanol •c Water A1# 25 to 2.1461 5 Water in (BV) B'# 215 °C 2366.9 to Ac | 405 to 7.9748 (AV) °C 3216. Bc tc\_C cp liq. Cc •ĸ 292.6 5 Cryos. A. c<sub>p</sub> vap. •ĸ consts. B. c, vap. te °C 383.04 5  $T_R = 0.82 T_C$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

NAME	2-n-1	lepty	lna p	hthalene			STRUCTURAL	FORMUI	
							^	<b>.</b>	
Mole % Pur.	Ref.	Mol For	ecul	C <sub>17</sub> H <sub>22</sub>	Molecular Weight 226.34	16	Q.	C7H15	
			Ref.			Ref.			Ref.
F. P. °C	1.		2	dt/dP	i		f to		1
F.P. 100%	ļ		L	*C/mm 25*C	40253	ا ۔ ا	g ' '•K	4	
B. P. °C 760 mm	341.		2	BP	48753. 0.0681	5	h	ļ	$\bot$
100	253.9	,	5	t <sub>e</sub>	0.0371	5	f' to		1
30	214.9		5	30 mm	0.9794	5	g' ' <u>*</u> K		1
10 1	185.0		5	∆Hm cal/g			h'		-
Pressure	1		-	∆Hv cal/g			m to	.	
mm 25°C	0.0	317	5	25°C 30 mm	92.54 71.19	5	<del>-</del>	1	
t <sub>e</sub>	1640.		5	BP	58.81	5	m¹ to	<del> </del>	+
Density	١	410	١, ١	t <sub>e</sub> ,	55.03	5	m' to		ì
g/ml 20°C		410 377	2 2	te (d, e)	54.57	5	0'	1	
d <sub>4</sub> 25 30		344	4	ΔHv/T <sub>e</sub>	18.95	5	Surface tension	<del>                                     </del>	+-
		542	4	d 215 to e 385 °C	92.30 0.0982	5	dynes/cm. 20°C	35.23	5
ь	-0.0	366	4	d¹ 25 to	95.35	5	30 40	34.25	5
Ref. Index	١,,	556	2	e'   215 °C	0.1124	5	<u> </u>	33.27	+-
<sup>n</sup> D 20°C		535	2	d <sub>c</sub> g/ml	0.291	5	Parachor [P] 20°C		
30	1.5	514	4	vc ml/g tc °C	3.43 552.8	5	30		
"C"	0.7	716	4	P <sub>c</sub> mm	14649.	5	40 Sugd	. 586.0	5
MR (Obs.)	77.2		2	PV/RT	1	<del>  -</del>	Exp. L.1.%/wt.	1	+
MR (Calc.)   (nD-d/2)		13 851	5 2	25°C	1.0000	5	u.		
Dielectric	2.4		5	30 mm BP	1.0000 0.9257	5	Dispersion	226.	2
A 215 to	<del> </del>	665	5	t	0.8964	5	Flash Point *C Fire Point		
B 405 °C	2190.	005	5	tc	0.224	5		<del> </del>	+-
С	170.		5	ΔHc kcal/m			M. Spec. Ultra V.		
A# 215 to		7003	5	ΔHf ΔFf	1		X-Ray Dif.		
B*[395 °C	2087.		ן י	Viscosity	· · · · · · · · · · · · · · · · · · ·	1	Infrared	<u> </u>	┿
° – – –	ĺ			centistokes			Solubility in TACETONE		
t <sub>k</sub> to				η ·c		İ	Carbon tet.	1	
A'   25 to	7 5	249	5		1		Benzene Ether	1	1
B' 215 °C	2474.6	1	5	<del>- , ,</del>	-		n-Heptane		
C'	194.3		5	B <sup>V</sup> to *C		İ	Ethanol		
A'* 25 to B'* 215 °C		492	5	III ·	-		Water Water in		-
Ac  405 to	2373.5	712	5	(B <sup>V</sup> )  to					_
Bc t <sub>c</sub> *C	3211.3		5		<del> </del>	<del> </del>	1		
Cc	291.1		5	c <sub>p</sub> liq. °K		İ			-
Cryos, A° consts, B°				c <sub>p</sub> vap. *K					
te °C F	384.1	8	5	c <sub>v</sub> vap.				İ	
$T_{\mathbf{R}} = 0.82$	Tc						grams/100 gr	ams solve	nt
REFERENC	ES: 1-1	)ow	2-A	PI 3-Lit. 4-	Calc. from de	t. da	ta 5-Calc. by fo	rmula	
SOURCE:			AP	YI					
PURIFICAT	ION:		AP	ľ					
LITERATU	RE REF	ERE	NCE	S:					
I									

No. 26 NAME l-n-Octylnaphthalene STRUCTURAL FORMULA Ç<sub>8</sub>H<sub>17</sub> Molecular C18H24 Ref. Molecular Mole Weight 240.372 % Pur Ref Ref Ref. -2. 2 F.P. °C F.P. 100% dt/dP f to °C/mm ۰ĸ g 25°C 1.47×10 B. P. °C h BP 0.0690 760 mm 356. 2 5 ſ١ 0.0369 to 100 268. •K g' 30 228. 30 mm 0.9952 5 4 10 198. 5 h! ∆Hm cal/g 1 146. 5 to m ∆Hv cal/g Pressure n °K 25°C 93.22 mm 25°C 0.04535 0 30 mm 69.59 5 1681. te 5 BP 57.37 5 to m Density g/ml 20°C te (d, e) 53.52 5 °K n' 0.9427 2 53.05 5 ۰, 0.9394  $d_4^t$ 25 ΔHv/Te 19.08 5 30 0.9361 Surface tension 230 to 91.38 5 0.9559 dynes/cm. 20°C 36.10 <u>•с</u> 400 0.0955 5 Ъ -0.0366 4 30 35.10 34.12 5 ď٠ 25 to 96.13 40 e' Ref. Index 230 •c 0.1163 5 20°C  $\mathbf{n}_{\mathbf{D}}$ 1.5526 [P] Parachor d<sub>c</sub> g/ml 25 1.5505 20°C vc ml/g tc °C 30 1.5485 4 30 563.3 5 40 "C" 0.7663 4 P<sub>c</sub> mm 13752. 5 Sugd. 625.0 5 MR (Obs.) 81.54 2 PV/RT Exp. L. l. %/wt. MR (Calc.) 81.131 1.0000 25°C 5 (nD-d/2) 1.0812 30 mm 1.0000 Dispersion 219. 2 Dielectric BP 0.9258 Flash Point °C 0.8958 A 230 to 7.1956 Fire Point tc 2248. B 430 °C M Spec. С 165. AHc kcal/m Ultra V ΔHf A\* 230 to 1.8164 X-Ray Dif. ΔFf B\* 410 °C 2144. Infrared Viscosity Solubility in centistokes Acetone to ·c Carbon tet. Benzene A1 25 to 7,5558 Ether B' (230 °C 2540. n-Heptane B<sup>V</sup> | C 190. to Ethanol A'\* 25 to B'\* 230 °C °C Water 2,2032 5 (BV) Water in 2441. to Ac | 430 to (AV)1 8.28106 5 °C Bc |\_tc\_ •c 3725.7 Сp liq. ۰ĸ Cc 336,0 Cryos. A. c<sub>p</sub> vap. ۰ĸ consts. B° c<sub>v</sub> vap. te °C F 401,24 5  $T_{\mathbf{R}} = 0.84 T_{\mathbf{c}}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

NAME	2-n-0	Octyl	naphi	thalene			STRUCTURAL	FORMUL	
Mole	Ref.	Mol	lecul	ar C <sub>18</sub> H <sub>24</sub>	Molecular			C <sub>8</sub> H <sub>17</sub>	
% Pur.		For	mula	18"24	Weight 240.37	•			
			Ref.			Ref.			Ref
F. P. °C	12.		2	dt/dP			f to		1
F.P. 100%	<del> </del>		-	*C/mm 25*C	137028.	5	g• <u>K</u>		
B. P. °C 760 mm	357.		2	BP	0.0693	5	h		┼
100	267.		5	t <sub>e</sub>	0.0366	5	f' to		i
30 10	197.2		5	30 mm	0.9977	5	h' <u>T</u>		
ì	145.8		5	∆Hm cal/g	ļ	ļ			+-
Pressure				ΔHv cal/g 25°C	03.70	5	m to		1
mm 25°C	0.0	4 <sup>58</sup>	5	30 mm	92.79 69.29	5	•		1
t <sub>e</sub>	1705.		3	BP	56.73	5	m' to		1
Density g/ml 20°C	0.4	350	2	te te (d, e)	53.90 52.33	5	n' K		
t 25	0.9	317	2	ΔHv/Te	19.18	5	0'		
		9284	4	d 230 to	91, 37	4	Surface tension		
a b		9482 0 <sub>3</sub> 66	4 4	e_ _400 °C		4	dynes/cm. 20°C	34.93 33.96	5
Ref. Index	<del> </del>		H	d' 25 to e' 230 °C	95.69	4	40	33.00	5
n <sub>D</sub> 20°C	1.5	5501	2		0.1160	4	Parachor [P]		T
25 30		5480	2	d <sub>c</sub> g/ml v <sub>c</sub> ml/g	0, 283 3, 53	5	20°C		
"C"	<del>                                     </del>	5459	4	vc ml/g tc °C	562.9	5	30 40		-
	<del></del>	7694	4	P <sub>c</sub> mm	13516.	5	Sugd.	625.0	5
MR (Obs.) MR (Calc.	81.9		5	PV/RT			Exp. L.1.%/wt.		
(nD-d/2)		0826	2	25°C 30 mm	1.0000	5	u. Dispersion	219.	2
Dielectric	2.4	103	5	BP	0.9172	5	Flash Point *C		+-
A 230 to		745	5	t e t c	0.9073	5	Fire Point		
B   410 °C	_ 2237. 165.		5	ΔHc kcal/m	0.520	-	M. Spec.		
A* 230 to	+	7759	5	ΔHf	1		Ultra V. X-Ray Dif.		
B*  410 °C			5	ΔFf		<del> </del>	Infrared		- {
K c				Viscosity centistokes			Solubility in +		
t <sub>k</sub> to	=			η •c			Acetone Carbon tet. Benzene		
A'  25 to	7.5	334	5				Ether		
B'   230 °C	2527.7 189.7		5	B <sup>v</sup> to		<del>                                     </del>	n-Heptane Ethanol		-
A'* 25 to	-	811	5	B <sup>V</sup> to A <sup>V</sup> I *C		1	Water		
B'+ 230 °C			5	(B <sup>v</sup> )  to	-	1	Water in		$\bot$
Ac  410 to	8.0	0941	5	(A <sup>V</sup> )  °C					
Bc_tc_°C	3444. 306.1		5	c <sub>p</sub> liq. *K					
Cryos, A° consts, B°			ļ	c <sub>p</sub> vap. *K					
t <sub>e</sub> °C F	402.3	38	5	c <sub>v</sub> vap.	1	1		l	
$T_{\mathbf{R}} = 0.8$							grams/100 gra		nt
	ES: 1-1	Dow			Calc. from de	et. da	ata 5-Calc. by for	mula	
SOURCE:				PI					
PURIFICA				PI					
LITERATU	RE REF	ERE	NCE	S:					

NAME 1-n-Nonylnaphthalene STRUCTURAL FORMULA C<sub>9</sub>H<sub>19</sub> Molecular C19H26 Molecular Weight 254.398 Mole Ref. Formula % Pur Ref. Ref. Ref. F.P. °C F.P. 100% 8. 2 dt/dP f °C/mm g <u>•</u>K 25°C 337693. B. P. °C h 0.0706 BP 372. 5 760 mm 2 f 5 0.0371 to 100 281.5 5 g' 30 240.9 5 30 mm 1.0219 5 10 209.7 5 h' AHm cal/g 1 157. 5 to AHv cal/g Pressure n •K 90.77 25°C mm 25°C 0.0423 30 mm 67.34 5 1713. te 5 BP 55.36 5 Density g/ml 20°C m' to t<sub>e</sub> (d, e) 51.51 5 •ĸ n' 0.9371 2 51.02 5 0' ď4 25 0.9339 2 AHv/Te 18.92 5 30 0.9307 4 Surface tension 240 to •C 89.36 5 0.9499 -0.0364 dynes/cm. 20°C 35.79 44 . 420 0.0914 Ъ 34.82 33.87 30 93.48 40 5 Ref. Index 240 0.1085 n<sub>D</sub> 20°C 1.5477 2 [P] Parachor d v t c 0,284 g/ml 5 25 1.5456 20°C 2 ml/g 3.52 5 1.5437 30 4 30 •c 575.2 5 40 "C" 0.7645 4 P<sub>c</sub> mm 5 12682. Sugd 664. 5 MR (Obs.) 86, 19 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 85.747 1.0000 25°C (nD-d/2)1.0792 2 30 mm 1.0000 212. 2 Dispersion Dielectric 2.395 5 BP 0.9203 Flash Point °C 0.8887 A 240 to t. 7,2272 5 Fire Point 0.215 B 1445 °C 2334. M Spec. C 165. AHc kcal/m Ultra V. ΔHf 1.8708 A\* | 240 to X-Ray Dif. ΔFf B\* 430 °C 2230.1 Infrared Viscosity Solubility in centistokes Acetone Carbon tet. •c Bensene 25 to 7,5895 Ether B' [240 °C 2637.4 n-Heptane B<sup>V</sup> | 190.6 5 to Ethanol •c Water A1# 25 to 2.2528 5 Water in (BV) B'# 240 °C 2535. to Ac | 445 to 8.3669 (AV) •c Bc tc\_C 3924.6 cp liq. •ĸ 345.3 Cryos. Aº cp vap. •ĸ consts. B° t<sub>e</sub> •C c, vap. F 419.44 5  $\overline{T_R} = 0.84 T_C$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

NAME	2 -n -	Nonyli	apht	halene				STRUCTURAL FO	RMULA	
Mole % Pur.	Re	f. Mo	lecul	C <sub>19</sub> H <sub>26</sub>		folecular Teight 254.39	98	CCC	<sub>9</sub> H <sub>19</sub>	
			Ref.				Ref.		R	lef.
F. P. *C	12.		2	dt/dP						
F.P. 100%	,			*C/mm				g to		
B. P. *C				25°C	l	337693.	5	h		
760 mm	372.		2	BP		0.0706 0.0371	5	f' to	<del>-</del>	
100 30	281.		5	t <sub>e</sub>			i i	g'*K		
10	240.		5	30 mm		1.0219	5	h'	l	
1	157.		5	ΔHm cal/g	$\vdash$		<u> </u>	m to		
Pressure	1			ΔHv cal/g 25°C		90.77	5	nK	1	
mm 25°C	0.	0423	5	30 mm	- 1	67.34	5	•	1	
t <sub>e</sub>	1713.		5	BP		55.36	5	m¹ to		_
Density g/ml 20°C	: 0	9298	2	te te (d, e)		51.50 51.02	5	n'ı •K		
at 25		9266	2	ΔHv/T			5	0'		
<sup>4</sup> 30	0.	9234	4		_	18.92	-	Surface tension		_
		9426	4		C C	89.37 0.0914	5	dynes/cm. 20°C 3	4.69	5
<u>b</u>		0364	4	d'   25 נוס	to	93.48	5		3.74 2.82	5
Ref. Index		5454	2	<u> </u>	.c	0.1085	5	Parachor [P]		Ť
<sup>n</sup> D 25		5433	2	d <sub>c</sub> g/ml		0.284	5	20°C	[	
30	1.	5424	4	vc ml/g tc °C		3, 52 57 <b>3</b> , 6	5	30		
"C"	0.	7688	4	tc °C Pc mm		12486.	5	40 Sugd. 66	4	5
MR (Obs.)	86.	56	2	PV/RT	_	12400.	3	Exp. L.1.%/wt.	<del>*:                                    </del>	<u> </u>
MR (Calc.			5	25°C		1,0000	5	u.		
(nD-d/2)	+	0805	2	30 mm		1.0000	5	Dispersion 21	2.	2
Dielectric		388	5	BP		0.9203 0.8887	5	Flash Point *C		
A 240 to B 440 °C		2272	5	te t		0.215	5	Fire Point		
c G	165.		5	ΔHc kcal/n	<u>n</u>			M. Spec.		
A* 240 to	1.	8708	5	ΔHſ				Ultra V. X-Ray Dif.		
B* 430 °C			5	ΔFf				Infrared		
K ——-	1			Viscosity centistokes	.			Solubility in +		
t <sub>k</sub> [ to					С		ļ	Acetone		
°c ايک			1	•				Carbon tet. Benzene		
A'   25 to		5895	5				ĺ	Ether		
B'   240 °C	2637. 190.		5	BY I				n-Heptane Ethanol	1	
			<del></del>		c		i	Water		
A'* 25 to B'* 240 °C		2528 4	5	I⊢.=v. <del>-</del> − -				Water in		
Ac  440 to	8.	3581	5		С		1		Ī	
Bci tc °C	3905.	В	5		ĸ		<del>                                     </del>	1		
Ce	342.	9	5				1	1	ļ	
Cryos. A consts. B			<u> </u>	P	K					
te C F	419.	44	5	c <sub>v</sub> vap.		·				
$T_{\mathbf{R}} = 0.8$								† grams/100 grams		:
REFEREN	CES: 1	-Dow	2-A	PI 3-Lit.	4-0	Calc, from de	t. da	ta 5-Calc. by formu	la	
SOURCE:			AF							
PURIFICA	TION:		AF	PI						
LITERATU	RE RE	FERE	NCE	S:						

No. 30 l-n-Decylnaphthalene STRUCTURAL FORMULA NAME C10 H21 Molecular C20H28 Ref. Molecular Mole % Pur Weight 268.424 Ref. Ref 15. 2 dt/dP f to F.P. 100% °C/mm g <u>•ĸ</u> 8.1x10<sup>5</sup> 25°C 5 B. P. °C h ΒP 0.0717 760 mm 387. 2 0.0370 5 f 5 100 295. to g' •ĸ 30 253. 5 30 mm 1.0438 10 222. 5 h' ∆Hm cal/g 168. to m ∆Hv cal/g Pressure •ĸ n 25°C 88.87 5 mm 25°C 0.05915 o 30 mm 65.58 5 te 1750. 5 BP 54.00 5 to Density g/ml 20°C te te (d, e) 50.14 5 n' •ĸ 0.9322 49.71 5 01 0.9290 25 2 d4 AHv/T 18.96 5 30 0.9258 4 Surface tension 1 255 87.58 5 0.9450 -0.0<sub>3</sub>64 8 dynes/cm. 20°C 35,53 1 430 1 25 •c 0.0868 e ь 30 34.56 5 to •C 91.42 33.62 40 0.1019 Ref. Index e' 255 5 20°C 1,5435 [P] n<sub>D</sub> 2 Parachor 0.252 d<sub>c</sub> g/ml 5 25 1.5414 2 20°C vc ml/g tc °C 5 5 3.962 1.5396 4 30 30 584.5 40 "C" 0.7631 4 703.0 5 P<sub>c</sub> mm 11737. 5 Sugd. MR (Obs.) 90.83 2 PV/RT Exp. L.1.%/wt. MR (Calc.) (nD-d/2) 90. 365 25°C 1.0000 1.0774 2 u. 30 mm 1,0000 207. 2 Dispersion 0.9189 Dielectric 2.382 5 RP Flash Point °C 0.8861 t<sub>e</sub> A 255 to Fire Point 7,2812 5 tç 450 °C 2429. M Spec. C 5 AHc kcal/m 165. Ultra V. ΔHf A\* | 255 to 1.9404 5 X-Ray Dif. ΔFf B+ 445 °C 2323,1 Infrared ĸ Viscosity Solubility in centistokes c Acetone to Carbon tet. •c Benzene A1 25 to 7,6469 Ether B' (255 °C 2745. n-Heptane  $\mathbf{B}^{\overline{\mathbf{v}}}$ c٠ 191. 5 Ethanol Ã۷ A<sup>1</sup>\* 25 to B<sup>1</sup>\* 255 °C •c Water 2.3253 5 Water in (BV) 2641 to Ac | 450 to 8.4631 (A<sup>V</sup>) °C Bc tc\_G 4108 •c liq. ۰ĸ 350. Сp Сc Cryos. Aº cp vap. ۰ĸ consts. B° c, vap. te °C 436.5 5  $T_R = 0.85 T_c$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

NAME	2-n-Decylr	a pht	halene			STRUCTURAL FORMULA	
Mole % Pur.		lecul	ar C <sub>20</sub> H <sub>28</sub>	Molecular Weight 268,4	24	C <sub>10</sub> H <sub>21</sub>	
/0 Fui.	F0.		,	Weight 200.4		- I	Ref.
	1 30	Ref.			Ref.		(ei
F. P. *C	20.	2	dt/dP	į.		f to	
F. P. 1007	•	<u> </u>	*C/mm 25*C	809594.	5	g <u>*K</u>	
B. P. °C 760 mm	387.	2	BP	0.0717		h	
100	294.9	5	t <sub>e</sub>	0.0370	5	f' to	
30	253.5	5	30 mm	1.0438	5	g' ' <u>*K</u>	
10	221.6	5	ΔHm cal/g			h <sup>i</sup>	
	168.	5	ΔHv cal/g	† <del></del>		m to	
Pressure mm 25°C	0 0 02	5	25°C	88.87	5	n   •K	
t <sub>e</sub>	0.0 <sub>5</sub> 92 1750.	5	30 mm	65.58	5		
Density	<del> </del>	<del>                                     </del>	BP	54.00 50.13	5	m' to	
g/ml 20°0	0.9253	2	te te (d, e)	49.70	5	n'   •K	
d <sub>4</sub> 25 30	0. 9221	2	ΔHv/T <sub>e</sub>	18.96	5		
	0.9189	4	d 255 to	87,59	5	Surface tension	
a b	0.9381 -0.0 <sub>3</sub> 64	4	_e   435 °C	0.0868	5		5
		+-	d' 25 to	91.42	5		5
Ref. Index		2	e'   255 °C	0.1019		Parachor [P]	_
D 25	1.5392	2	d <sub>c</sub> g/ml	0.282	5	20°C	
30	1.5374	4	vc ml/g tc *C	3.55 582.9	5	30	
"C"	0.7658	4	P <sub>c</sub> mm	11557.	5	40 Sugd. 703.0	5
MR (Obs.)		2	PV/RT		Ť	Exp. L.1.%/wt.	
MR (Calc. (nD-d/2)	) 90.365 1.0786	5 2	25°C	1,0000	5	u.	
Dielectric			30 mm	1.0000		Dispersion 207.	2
		5	BP t	0.9189 0.8861		Flash Point C	
A 1 255 to B   450 °C		5	te t	0.206	5	Fire Point	
c 13.50	165.	5	AHc kcal/m	<u> </u>	<u>†                                      </u>	M. Spec.	
A*  255 to	1.9404	5	ΔHf			Ultra V. X-Ray Dif.	
B*  445 °C	2323.1	5	ΔFf	<del> </del>	<del> </del>	Infrared	
K —		I	Viscosity centistokes		1	Solubility in +	
t <sub>k</sub> to		1	η °C		1	Acetone Carbon tet.	
t <sub>x</sub>   °C		<u> </u>	1	1	}	Benzene	
A'  25 to B'  255 °C		5			1	Ether	
B' 1255 °C	2744.7	5	B <sub>v</sub> to			n-Heptane Ethanol	
A'* 25 to		5	A C		1	Water	
B'+ 255 °C		5	(B <sup>V</sup> )  to		1	Water in	
Acl 450 to		5	(A <sup>V</sup> )  °C		1		
Bc_tc_°C	4088.2	5	c <sub>p</sub> liq. °K	1	T	<b>-</b>	
Cc	348.1	5	-11				
Cryos, A' consts, B'			c <sub>p</sub> vap. *K		}		
t <sub>e</sub> °C F		5	c <sub>v</sub> vap.				
$T_{\mathbf{R}} = 0$ .	85 T <sub>C</sub>					grams/100 grams solvent	<u> </u>
REFEREN	CES: 1-Dow	2 - A	PI 3-Lit. 4-	Calc. from de	et. d	data 5-Calc, by formula	
SOURCE:		AI	PI				
PURIFICA	TION:	A	PI				
LITERATI	JRE REFERE	NCE	S:				
1							
L							

No. 32 STRUCTURAL FORMULA NAME 1-n-Undecylnaphthalene C11 H23 Molecular C21H30 Mole Ref. Molecular Weight 282.450 % Pur Ref. Ref Ref. F.P. C F.P. 100% 23. 2 dt/dP f °C/mm g <u>•</u>K\_ 25°C 1824546. B. P. °C h BP 0.0727 5 760 mm 401. 2 f 0.0369 5 5 to 100 307.4 g' •K 30 265.2 5 30 mm 1.0645 5 10 232.6 5 h! ∆Hm cal/g 177. 5 1 to ΔHv cal/g Pressure n •K 25°C 86.92 0.0<sub>5</sub>4 mm 25°C 30 mm 63.86 te 1783. 5 BP 52.59 5 to m' Density g/ml 20°C 48.77 te te (d, e) 5 •ĸ 0.9279 n' 48.32 ď 0.9248 2 AHv/T dt4 25 5 18.98 30 0.9217 4 Surface tension 265 to 85.89 0.9403 -0.0<sub>3</sub>62 4 dynes/cm. 20°C 35.31 5 1 450 0.0830 4 Ъ 34.37 30 to 89.32 40 33.46 5 e† Ref. Index 265 0.0960  $\mathbf{n}_{\mathbf{D}}$ 20°C 1.5399\* [P] Parachor ďc 0.280 5 g/ml 25 1.5379 2 20°C ml/g 3.57 1.5359 30 t<sub>c</sub> 4 30 594.4 5 40 "C" 0.7616 4 P<sub>c</sub> mm 11030. 5 Sugd 742.0 5 MR (Obs.) 95.49 2 PV/RT Exp. L.1. %/wt. 5 MR (Calc.) 94.983 1.0000 5 25°C (nD-d/2) 1.0760 2 30 mm 1,0000 201. 2 Dispersion 2.371 5 Dielectric BP 0.9164 Flash Point °C 0.8832 A 265 to 7.3278 5 Fire Point tc 0.206 B 475 °C 2517. 5 M Spec. C 165. 5 AHc kcal/m Ultra V 2.0032 AHI 5 A\* | 265 to X-Ray Dif. ΔFf B\* 460 °C 2409.7 Infrared Viscosity Viscos., centistokes °C Solubility in Acetone Carbon tet. •c Benzene 25 to 7,6964 Ether B' 1265 °C 2844.1 n-Heptane В 192.1 5 Ethanol ۸̈۷ to •c Water A1# 25 to 2.3894 5 Water in (BV) B'# 265 °C 2738.1 5 to Ac | 475 to 8.5591 5 (AV) •c Bc tc\_C 4301.2 cp liq. •ĸ Cc 357.9 Cryos. A. cp vap. •ĸ consts. B° c, vap. te .C F 452.42 5  $T_R = 0.85 T_c$ grams/100 grams solvent for undercooled liquid REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det, data 5-Calc. by formula SOURCE: API **PURIFICATION:** API LITERATURE REFERENCES:

NAME	2-n-U1	ndecylr	nap	hthalene	<del></del>		STRUCTURAL FOR	MULA
							Circ	H <sub>23</sub>
Mole % Pur.	Ref.	Mole Form	cul nuls	C21H30	Molecular Weight 282.4	50		
	<del></del>		Ref.			Ref.		Ref.
F, P. *C	20.		2	dt/dP	Ĭ		f to	
F.P. 100%				°C/mm	1024546	_	g  • <u>K</u>	ŀ
B. P. *C 760 mm	401	l	,	25°C BP	1824546. 0.0727	5	h	
100 mm	401. 307.4		5	t.	0.0369	5	f' to	
<b>3</b> 0 10	265.2		5	30 mm	1.0645	5	g' <u>K</u>	
10	177.		5	ΔHm cal/g	<u> </u>	┖	h'	
Pressure				ΔHv cal/g	0, 03	١.	m to	ł
mm 25°C	0.0 <sub>5</sub>	394	5	25°C 30 mm	86.92 63.86	5		
Density	1703.	-+	긕	BP	52.58	5	m' to	
g/ml 20°C	0.92	13	2	te te (d, e)	48.76 48.31	5	",   <u>*</u> K_	
dt 25 4 30	0.91		2	AHV/T	18.98	5	°'	
	0.91		4	d 265 to	<del></del>	5	Surface tension	,
a b	-0.03		4	450•C		5	dynes/cm. 20°C 34.	
Ref. Index			$\neg$	d' 25 to e' 265 °C		5	40 32.	
<sup>n</sup> D 20°C	1.53		2 2	d <sub>c</sub> g/ml	0,280	5	Parachor [P] 20°C	
30	1.53		4	vc ml/g	3,57	5	30	
"C"	0.76	41	4	, -	592.9	5	40 Sund 743	0 5
MR (Obs.)	95.83	$\neg \uparrow$	2	P <sub>c</sub> mm	10864.	<u>                                     </u>	Sugd. 742. Exp. L.1.%/wt.	- 3
MR (Calc.) (nD-d/2)	94.98		5 2	25°C	1.0000	5	u.	
Dielectric	<del></del>		5	30 mm BP	1.0000		Dispersion 201.	2
A 265 to	7, 32		5	t_	0.9164 0.8832		Flash Point *C Fire Point	
B (460 °C			5	¹c	0.206	5	M. Spec.	
<u> </u>	165.		5	ΔHc kcal/m ΔHf			Ultra V.	
A*  265 to B*  460 °C	2.00 2409.7		5 5	ΔFf			X-Ray Dif. Infrared	
к <u>стот</u> -			1	Viscosity			Solubility in +	
t to	.			centistokes り *C	Į	1	Acetone	
t <sub>k</sub> to t <sub>x</sub> °C				'	1	1	Carbon tet. Benzene	
A'   25 to	7.69		5			1	Ether	
B'   265 °C	2844.1 192.1		5	B <sup>V</sup> to			n-Heptane Ethanol	
A1# 25 to	2.38	$\rightarrow$	5	A <sup>V</sup> I °C		1	Water	
B'* 265 °C			5	(B <sup>V</sup> )  to			Water in	
Acl 460 to	8.54		5	(A <sup>V</sup> )  °C	<u> </u>	L_	]	
Bc tc C	355.5		5	c <sub>p</sub> liq. •K				
Cryos. A*	†			c <sub>p</sub> vap. *K	1			
consts. B°	ļ			_				
te°C F	452, 42	L	5	c <sub>v</sub> vap.		<u> </u>	1,00	
T <sub>R</sub> = 0.8		```	_	DI 3 144 4	Cala ( 1		grams/100 grams s	
	/ES: 1-1	70W Z		API	-Caic, from de	. a	ata 5-Calc. by formula	1
SOURCE:	TION:			API	· · · · · · · · · · · · · · · · · · ·			····
LITERATU		FREN						
MIERAIU	RE REP	EREN	U EX					

No. 34 l-n-Dodecylnaphthalene STRUCTURAL FORMULA NAME C12 H25 Molecular C22H32 Molecular Weight 296.476 Ref. Mole % Pur Formula Ref. Ref. 27. 2 dt/dP f to F.P. 100% °C/mm g <u>•K</u> 4200115. 5 25°C B. P. °C h 0.0737 5 BP 760 mm 415. 2 5 t<sub>e</sub> 0.0367 ſ١ to 100 320.0 5 g' •K 1.0845 5 30 277.0 5 30 mm 5 10 243.8 h' ∆Hm cal/g 187. to m AHv cal/g Pressure °K 85.22 n 5 25°C mm 25°C 0.0517 0 30 mm 62.37 5 te 1818. BP 51.42 5 m to Density g/ml 20°C 47.60 5 te te (d, e) 0.9240 n' •ĸ 47.19 5 0.9209 0 25 2  $d_4^t$ AHv/Te 19.03 5 30 0.9178 4 Surface tension 1 275 84.35 5 0.9364 -0.0<sub>3</sub>62 dynes/cm. 20°C 35.10 <u> 1 470</u> <u>•c</u> 0.0793 5 ь 30 34.17 5 25 •c 87.49 40 33.26 5 0.0907 Ref. Index e' 275 5 1.5364 20°C 2 [P]  $\mathbf{n}_{\mathbf{D}}$ d g/ml vc ml/g tc °C Parachor 0,278 5 25 1.5344 20°C 5 30 1.5325 3.6 4 30 602.7 5 40 "C" 0.7603 4 5 P<sub>c</sub> mm 10228. Sugd. 781. 5 MR (Obs.) 100.11 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 99.601 1.0000 25°C 5 (nD-d/2) 1.0744 2 30 mm 1.0000 196. 2 Dispersion 2.361 0.9151 Dielectric 5 BP 5 Flash Point °C 0.8811 te 5 A 275 to Fire Point 7.3774 0.20 5 tc 2608. <u> 470 °C</u> M Spec. C 165. 5 AHc kcal/m Ultra V. ΔHf A# | 275 to 2.0669 5 X-Ray Dif. ΔFf B\* 470 °C 2498.8 Infrared ĸ Viscosity Solubility in ceptistokes Acetone t<sub>k</sub> Carbon tet. •c Benzene A' 25 to 7.7491 2947.0 Ether 275 °C n-Heptane вŸ 192.8 5 to Ethanol •c Water A1# 25 to 2.4557 5 Water in B1# 275 °C (BV) 2838.9 5 to Ac | 470 to 8,6510 5 (AV) °C Bc \_tc\_ 4482.7 •c cp liq. ۰ĸ Cc 363.1 Cryos. A. cp vap. ۰ĸ consts. B° c, vap. te °C 468,34 5  $T_R = 0.85 T_c$  for undercooled liquid grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API **PURIFICATION:** API LITERATURE REFERENCES:

No. 35 2-n-Dodecylnaphthalene NAME STRUCTURAL FORMULA C12 H25 Mole Ref. Molecular Molecular  $C_{22}H_{32}$ % Pur. Formula Weight 296.476 Ref. Ref. 26. F. P. °C 2 dt/dP f to F.P. 100% °C/mm 1 ٠ĸ g 25°C 3943913. B. P. °C h 0.0737 5 BP 760 mm 414. 2 5 0.0368 ſ١ te to 100 319.1 5 •<u>к</u> g' 1.0832 5 30 276.2 30 mm 10 243.0 5 h' ∆Hm cal/g 187. m to ∆Hv cal/g Pressure n ۰ĸ 25°C 85.03 mm 25°C 0.0518 62.25 51.31 30 mm 1815. 5 t<sub>e</sub> 5 ΒP m' to Density g/ml 20°C 47.48 5 te te (d, e) n' <u>•K</u> 0.9177 ١ 2 47.09 5 ٥' 0.9146 25 2  $d_4^t$ ΔHv/T<sub>e</sub> 5 19.01 0.9115 4 30 Surface tension d 275 84.16 5 0.9301 -0.0<sub>3</sub>62 dynes/cm. 20°C 34.15 a d 465 d 25 0.0793 <u>•c</u> 5 ь 4 33.24 32.35 30 to 87.30 5 5 40 e' 275 Ref. Index °C 0.0907 5 20°C 1,5343 2 [P] Parachor n<sub>D</sub> d g/ml vc ml/g tc °C 0.278 5 25 1.5323 2 20°C 3.6 30 1.5305 4 30 600.1 5 t<sub>c</sub> 40 "C" 0.7628 4  $P_c$  mm 5 5 10061. 781. Sugd MR (Obs.) 100,47 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 99,601 5 25°C 1,0000 (nD-d/2) 1.0754 2 1.0000 30 mm 2 196. Dispersion Dielectric 5 2.354 0.9153 BP 5 Flash Point C te tc 0.8809 A 275 to 7.3730 5 Fire Point 0.20 B | 470 °C 2601. M. Spec. С 165. 5 ΔHc kcal/m Ultra V. A\* 275 to ΔHf 2.0635 5 X-Ray Dif. ΔFf B\*|\_470\_°C 2492.2 Infrared ĸ Viscosity Solubility in centistokes Acetone to Carbon tet. •c  $^{t}x_{\perp}$ Benzene A' | 25 to 7.7444 5 Ether B' | 275 °C 2939.0 5 n-Heptane B<sup>V</sup> | Ċ١ 192.8 5 Ethanol to °C Water A1# 25 to 2.4516 5 Water in (B<sup>V</sup>) B1 # 275 °C 2831.1 5 to Acl 470 to (A V) 8.6301 5 °C Bc\_tc\_C 4439.4 cp liq. ۰ĸ Cc 359.3 Cryos. Aº c<sub>p</sub> vap. ۰ĸ consts. B° c vap. te °C F 467,20  $T_R = 0.85 T_C$ grams/100 grams solvent 2-API 3-Lit. 4-Calc, from det. data 5-Calc. by formula REFERENCES: 1-Dow API SOURCE: API PURIFICATION: LITERATURE REFERENCES:

## TABLE VI. TETRAHYDRONAPHTHALENES

							No. 1	
NAME	1, 2, 3, 4-7	Cetra	hydronaphthale	ne		STRUCTURAL H		A
					_	<b>~</b>	` `\H₂	
Mole	Ref. Mo	lecul	ar C <sub>10</sub> H <sub>12</sub>	Molecular			JH₂	
% Pur.	For	mul	C <sub>10</sub> H <sub>12</sub>	Weight 132, 1	96	<u> </u>	2	
		Ref.			Ref.			Ref.
F, P. *C	-35.790	2	dt/dP			f to		
F.P. 100%	·		*C/mm 25*C	35. 31	5	g '°K		l
B. P. °C 760 mm	207.57	2	BP	0.0568	5	h		
100	135.51	5	t <sub>e</sub>	0.0369	5	f' to		
30	103.66	5	30 mm	0.7977	5	g' <u>*K</u>		
10 1	79.36 38.70	5	ΔHm cal/g	<u> </u>	Ш	h' i		
Pressure	1		ΔHv cal/g			m to		i
mm 25°C	0.3869	5	25°C 30 mm	97.86 89.21	5 5	0		1
t <sub>e</sub>	1320.0	5	BP	76.45	5	mi to		<del></del>
Density g/ml 20°C	0.0703	١.	t <sub>e</sub> (d. s)	73.55	5	n'  *K		l
	0.9702 0.9662	2	e (a, e)	73.63	1 1	0'		1
dt 25 4 30	0.9622	4	ΔHv/T <sub>e</sub>	19.21	5	Surface tension		$\vdash$
	0.9862	4	d 105 to		5	dynes/cm21.5°C	35, 46	3
<u>b</u>	-0.0380	4	d'   25 to	100.61	5	\$ 50 40	32.48 34.19	<b>3</b>
Ref. Index		2	e'   105 °C	0.110	5	Parachor [P]	34.17	-
<sup>n</sup> D 25	1.53919		d <sub>c</sub> g/ml	0.309	5	21.9°C	332.9	4
30	1.53703	4	vc ml/g tc °C	3.24 446.	5	50	333.3	4
"C"	0.7304	4	P <sub>c</sub> mm	26364.	5	40 Sugd.	334.9	5
MR (Obs.)		2	PV/RT		+	Exp. L.1.%/wt.		
MR (Calc. (nD-d/2)	42.58 1.05625	5 2	25°C	1,0000	5	u.		
Dielectric	1	Ť	30 mm BP	1.0000	5	Dispersion	166.	2
A 105 to	6,96965	4	t_	0.9374	5	Flash Point *C Fire Point		
B   265 °C		4	t <sub>c</sub>	0.252	5	M. Spec.		┼
С	199.	5	ΔHc kcal/m ΔHf			Ultra V.		
A*  105 to B*  245 °C	1. 38581 1561. 3	5	ΔFf	1		X-Ray Dif.		1
K 245 C	- 1561.3	1	Viscosity			Infrared		┼─
°	-	l	centistokes			Solubility in Acetone	1	1
t <sub>k</sub> to t <sub>x</sub> to			η ·c			Carbon tet.		}
A <sup>1</sup>   25 to	7,31568	5				Benzene Ether		Ì
B' 105 °C	1878.46	5	B <sup>V</sup> to		<del> </del>	n-Heptane		Ì
C'	218.	5	B to			Ethanol Water	1	İ
A'* 25 to B'* 105 °C		5	(BV)  - to	-		Water in	1	1
Ac  265 to			(A <sup>V</sup> )  °C	1				
Bc tc C	2064.90	5		+	t			
Cc	252.	5	P -		1		1	1
Cryos, A° consts, B°			c <sub>p</sub> vap. *K					
te ℃	232.9	5	c <sub>v</sub> vap.					L
$T_R = 0.7$	5 Т <sub>с</sub>					grams/100 gra	ms solver	at
REFEREN	CES: 1-Dow	2-A	PI 3-Lit. 4	-Calc. from d	et. da	ta 5-Calc. by for	mula	
SOURCE:		AI	PI					
PURIFICA	TION:	AF	PI					
LITERATU	RE REFERE	NCE	S: 3 Phys. Cl	nem. <u>101</u> , 269	(1922	2) Herz and Schufta	n	

No. 2 STRUCTURAL FORMULA NAME 1-Methyl-1, 2, 3, 4-Tetrahydronaphthalene HCH<sub>3</sub> Ref. Molecular Molecular Mole  $C_{11}H_{14}$ Weight 146, 222 % Pur. Formula Ηz Ref Ref. dt/dP f F.P. 100% °C/mm g °K 1 25°C 60.3 B, P. \*C h ΒP 0.0578 760 mm 219. 2 t<sub>e</sub> 0.0368 5 ſ١ to 146. 100 g' °K. 30 113. 5 30 mm 0.8139 5 10 88. 5 h' AHm cal/g 47. 5 to ΔHv cal/g m Pressure °K n 25°C 92.21 mm 25°C 0.2173 o 30 mm 83.08 5 te 1349.88 5 BP 5 71.05 m' to Density 68.17 5 te te (d, e) •ĸ g/ml 20°C n' 0.9580 2 68.00 5 ٥' 25 30  $\mathbf{d_{4}^{t}}$ 0.9543 2 ΔHv/Te 5 19.2 0.9506 4 Surface tension 1 115 95.93 5 to 0,9728 a b dynes/cm. 20°C e °C 5 -0. 0374 245 0.1136 30 34.95 to 25 94.8 5 1 40 33.87 Ref. Index e' 115 0.1036 20°C [P] n<sub>D</sub> 1.5357 2 Parachor d<sub>c</sub> g/ml 0.302 5 25 20°C 1.5336 vc ml/g tc °C 3.31 30 1.5312 4 30 446. 5 40 "C" 0.7325 4 P<sub>c</sub> mm 23063. 5 Sugd. 374.0 5 MR (Obs.) 47.57 2 PV/RT Exp. L. 1. %/wt. MR (Calc.) 47.197 25°C 1.0000 5 u. (nD-d/2) 1.0567 2 30 mm 1.0000 5 Dispersion Dielectric BP 0.9525 5 Flash Point °C 0.9347 A 115 to 6,99355 Fire Point 0.250 1710.9 t<sub>c</sub> B 260 °C 5 M Spec. Ultra V. 197. С AHc kcal/m ΔHf A\* | 115 to 1.44653 5 X-Ray Dif. ΔFf B\* 255 °C 1608.5 Infrared Viscosity Solubility in centistokes Acetone to Carbon tet. •c Benzene A' | 25 to 7, 34109 Ether B! 1115 °C 1933.3 n-Heptane  $\mathbf{B}^{\widehat{\mathbf{v}}}$ c٠ 5 Ethanol 217. to ÃV i °C Water AI+ A'\* 25 to B'\* 115 °C 1.81602 5 Water in (BV) 1831.7 5 to Ac | 260 to 7.39905  $(A^{V})_{I}$ 5 °C Bc t<sub>c</sub> C 2107.3 cp liq. °K Сc 248. Cryos. A\* c<sub>p</sub> vap. °K consts. B° c, vap. te °C 245.87 5  $T_R = 0.75 T_C$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

NAME	2-Meth	yl-1,	2, 3,	4-Tetrahydron	aphthalene		STRUCTURAL H2		A
Mole % Pur.	Ref.	Mol-	ecula mula		Molecular Weight 146.2	22	Hz	HCH <sub>3</sub>	
			Ref.			Ref.			Re
F.P. °C F.P. 100%				dt/dP °C/mm			f to		
B. P. °C 760 mm	218.		2	25°C BP	55.873 0.0578	5	h		_
100 30	145. 112.		5	t <sub>e</sub> 30 mm	0.037 0.8144	5	f'   to   to		
10 1	87. 46.		5	ΔHm cal/g			h'		_
Pressure mm 25°C	0.23 1347.47		5	ΔHv cal/g 25°C 30 mm	91.34 82.56	5	m to to		
Density g/ml 20°C	0.95	2	2	BP t <sub>e</sub> (d, e)	70.68 67.83 67.67	5 5	m' to r' K		
d <sup>t</sup> 25 4 30	0. 94 0. 94		2 4	ΔHv/T <sub>e</sub>	19.15	5	Surface tension		-
a b	0.96 -0.03		4	d 110 to e 245 °C d 25 to	95.12 0.1121 93.86	5 5 5	dynes/cm. 20°C 30 40	35.15 33.99 32.85	5 5 5
Ref. Index n <sub>D</sub> 20°C 25 30	1.53 1.52 1.52	9	2 2 4	d g/ml vc ml/g t °C	0.1009 0.292 3.42 442.	5 5 5	Parachor [P] 20°C 30	32.03	
"C"	0.73	11	4	tc *C Pc mm	22270.	5	40 Sugd.	374.0	5
MR (Obs.) MR (Calc.) (nD-d/2) Dielectric	47.5 47.19 1.05		2 5 2	PV/RT 25°C 30 mm BP	1.0000 1.0000 0.9526	5 5 5	Exp. L.1.%/wt. u. Dispersion		
A 110 to B 1 260 °C	6, 98	85	5	t e t c	0. 935 0. 250	5	Flash Point °C Fire Point  M. Spec.		-
A* 110 to B* 255 °C	198. 1.44 1606.0	133	5 5 5	ΔHc kcal/m ΔHf ΔFf			Ultra V. X-Ray Dif. Infrared		
K c t <sub>k</sub> t <sub>x</sub> *C				Viscosity centistokes			Solubility in + Acetone Carbon tet. Benzene		
A'   25 to B'   110 °C C'	7. 33 1930. 9 216.	572	5 5 5	B <sup>V</sup> to			Ether n-Heptane Ethanol		
A'* 25 to B'* 110 °C	1.81 1828.7	016	5 5	(B <sup>V</sup> )  to	-		Water Water in		ļ
Acl 260 to Bc t <sub>c</sub> °C Cc	7.39 2103.9 249.	465	5 5 5	(A <sup>V</sup> )  °C c <sub>p</sub> liq. °K		+-			
Cryos. A° consts. B°				cp vap. *K					
t <sub>e</sub> °C T <sub>R</sub> = 0.75	244.81	l .	5	c <sub>v</sub> vap.	1				<u>_</u>
REFERENC		)ov:	2 4	PI 3-Lit. 4-	Calc from 3		grams/100 gram		nt
	,E3: 1-L	,0 <b>W</b>			Cale, from a	et. da	ata 5-Calc. by for	4.4	
SOURCE:	TON		AF						
PURIFICAT		ERÉI							

No. 4 STRUCTURAL FORMULA NAME 5-Methyl-1, 2, 3, 4-tetrahydronaphthalene 42 Molecular Ref. Molecular Mole C11H14 Weight 146.222 % Pur. Formula H<sub>3</sub>C Ref. Ref Ref. -22,90 2 dt/dP f to F. P. 100% °C/mm g •ĸ 25°C 129.63 B. P. \*C h ВP 0.05894 760 mm 234.35 2 0.0369 5 ſ١ to 100 5 ٤, 159.4 g' \_°K 30 126.14 5 30 mm 0.8341 5 10 100.71 5 h\* ΔHm cal/g 58.06 to ΔHv cal/g m Pressure •ĸ n 25°C 97.78 mm 25°C 0.0953 o 30 mm 86.62 5 t<sub>e</sub> 1379.9 5 BP 73.50 5 m' to Density g/ml 20°C 5 5 70.32 n' •K 0.9720 (d, e) 2 70.05 ۰' 0.9683 25 2  $\mathbf{d_4^t}$ ΔHv/T 5 19.18 30 0.9646 4 Surface tension 125 101,90 to 0.9868 -0.0<sub>3</sub>74 38,20 dynes/cm. 20°C •c 5 0.1212 265 Ъ 4 30 37.05 5 •C 25 100.54 40 35.93 Ref. Index •' 125 0.1104 5 20°C (P) 1.54395 Parachor  $\mathbf{n}_{\mathbf{D}}$ ďc g/ml 0.293 5 25 1.54190 20°C 5 ml/g 3.41 30 t<sub>c</sub> 1.53985 30 •c 470. 5 40 "C" 0.7323 4 P<sub>c</sub> mm 24250. 5 Sugd. 373.9 5 47.48 MR (Obs.) 2 PV/RT Exp. L.1. %/wt. MR (Calc.) (nD-d/2) 47.20 1.0000 25°C 5 1.05795 30 mm 1.0000 Dispersion 164. 2 Dielectric BP 0.9448 Flash Point °C t<sub>e</sub> 0.9252 5 1 125 to 7.03372 1778.9 Fire Point tc 0.245 280 °C В M Spec. C 194. 5 AHc kcal/m Ultra V ΔHf A\* | 125 to 1.48795 X-Ray Dif. B+ 275 °C ΔFſ 1678.2 Infrared Viscosity Solubility in c centistokes Acetone to Carbon tet. •c Benzene A' 25 to 7.38379 Ether B١ L1 25 °C 2010.1 n-Heptane B<sup>V</sup> A<sup>V</sup> C 214. to Ethanol •c Water A'\* 25 to B'\* 125 °C 1.85270 • Water in (BV) 1908.06 to Ac | 280 to Bc | t °C (A<sup>V</sup>) 7.43838 5 °C 2187.1 Bc tc\_'C liq. •ĸ Сp 246. Cryos. A° c<sub>p</sub> vap. •ĸ consts. B° c<sub>v</sub> vap. f .C 262,85 5  $T_R = 0.75 T_C$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

NAME	6-1	Methyl -	1, 2, 3	, 4-Tetrahydro	naphthalene	_	STRUCTURAL	FORMULA	
Mole % Pur.	R	ef. Mo	lecul		Molecular Weight 146.22	22	нзс	H <sub>2</sub> H <sub>2</sub>	
			Ref.		T	Ref.		R	Ref
F, P, *C	-39	. 75	2	dt/dP			f t		
F.P. 1007				°C/mm				ĸ	
B. P. *C				25°C BP	98. 987	5	h		
760 mm 100	229		2	te	0.0586 0.0368	5	f' t		_
30	155 122		5	30 mm	0.8272	5		K	
10	96		5	ΔHm cal/g			h' i	1 1	
1	54	<u>.                                    </u>	5	ΔHv cal/g	<del> </del>		m t		
Pressure mm 25°C	١.	. 1274	5	25°C	95.82	5		K	
t <sub>e</sub>	1373		5	30 mm	85. 37	5		_LL	
Density	<del>                                     </del>			BP te	72.81 69.74	5	m' t		
g/ml 20°0		. 9537	2	t (d, e)	69.52	5		K	
d <sub>4</sub> 25		.9500 .9463	2 4	ΔHv/T <sub>e</sub>	19.23	5			
		. 9685	4	d 120 to	99.6	5	Surface tension		
b b		.0374	4	255 °C		5	dynes/cm. 20°0		5
Ref. Index	+			d'   25 to e'   120 °C	98.52 0.1081	5	40		5
n <sub>D</sub> 20°0		. 53572		d <sub>c</sub> g/ml	0, 303	5	Parachor [P]		
25 30		.53365 .53122	2 4	v_ml/g	3.30	5	20°0	5	
"C"	<del></del>	. 7358	4	t°. •C	460.	5	40		
MR (Obs.		. 79	2	P <sub>c</sub> mm	23374.	5	Sug	d. 374.0	5
MR (Calc.		. 197	5	PV/RT	1 0000	_	Exp. L, l, %/wt	.	
(nD-d/2)	1	. 05887	2	25°C 30 mm	1.0000	5	u. Dispersion	166.	2
Dielectric				BP	0.9498	5	Flash Point *C	100.	<u>-</u>
A 120 to		. 01848	5	t <sub>e</sub>	0.9311 0.247	5 5	Fire Point		
B (270 °C	1754 195		5	tc ΔHc kcal/m	0.241	-	M. Spec.		_
A+ 120 to			+	ΔHC KCM1/H			Ultra V.		
B* 265 °C		. 46801 . 9	5	ΔFf			X-Ray Dif. Infrared		
ĸ	-  '			Viscosity	1	1	Solubility in		_
t to	-1			centistokes	Ì		Acetone		
tk C				η ·c			Carbon tet. Bensene		
A'   25 to	7	. 36759	5	1	1		Ether		
B' 120 °C			5	-v T	1	$\vdash$	n-Heptane		
C'	215		5	B <sup>V</sup> to C		l	Ethanol Water	1 1	
A'* 25 to B'* 120 °C		.83858 6	5 5	(BV) - to	-	1	Water in	1 1	
Ac  270 to	<del></del>	. 42299	5	(A <sup>V</sup> )  °C	1				
Bc tc *C	2156	. 8	5		<del> </del>	<del> </del>	1	1 1	
Cc	246	<u> </u>	5	P	1		1		
Cryos. A'consts, B'				c <sub>p</sub> vap. *K					
t <sub>e</sub> °C	257	. 13	5	c <sub>v</sub> vap.	<u> </u>	L			
$T_R = 0.7$							<sup>+</sup> grams/100 g		
REFEREN	CES:	l-Dow	2-A	PI 3-Lit. 4-	Calc. from de	t. da	ata 5-Calc, by f	ormula	
SOURCE:			API						
PURIFICA	TION:		API						
LITERATU	JRE R	EFERE	NCE	<b>5</b> :					

No. 6 STRUCTURAL FORMULA 1-Ethyl-1, 2, 3, 4-Tetrahydronaphthalene NAME HC2H5 H2 Molecular Ref. Molecular Mole C12H16 Formula Weight 160, 248 % Pur Hэ Ref Ref. dt/dP f to F.P. 100% °C/mm g <u>°K</u> 25°C 139.05 B. P. °C h ВP 0.0591 5 760 mm 236. 0.0367 5 f 5 t<sub>e</sub> to 100 161. •ĸ g' 30 127. 5 30 mm 0.837 5 10 102. 5 h' ΔHm cal/g 59. m to ΔHv cal/g Pressure °K n 25°C 89.56 mm 25°C 0.08854 o 30 mm 79.26 5 1394.39 5 t<sub>e</sub> BP 5 67, 63 m Density g/ml 20°C 5 te (d, e) 64.69 n' ٠ĸ 0.9535 2 64.51 5 0.9498 0 25 d4 AHV/T 5 19.26 30 0.9461 4 Surface tension 1 125 92.92 5 to 0.7896 -0.0374 . dynes/cm. 20°C 36.47 •c 0.1072 265 5 Ъ 30 35.35 ŧō •C 25 92.08 5 40 34.26 5 e¹ Ref. Index 125 0.1006 5 20°C [P] 1.5321 2 Parachor  $\mathbf{n}_{D}$ d<sub>c</sub> g/ml 0.303 5 25 1.5300 2 20°C ml/g \*C 3.30 5 t<sub>c</sub> 30 1.5278 4 30 458. 5 40 "C" 0.7314 4 P<sub>c</sub> mm 21103. 5 5 Sugd. 412.7 MR (Obs.) 52.08 2 PV/RT Exp. L.1. %/wt. MR (Calc.) (nD-d/2) 51.815 1.0000 5 25°C u. 1.0553 2 30 mm 1.0000 Dispersion 0.9501 Dielectric RP 5 Flash Point °C t<sub>e</sub> 0.931 5 A 125 to 7.03639 Fire Point tc 0.245 1786.9 L280 °C M Spec. C 194. 5 AHc kcal/m Ultra V. ΔHſ A\* | 125 to B\* | 275 °C 1.51917 5 X-Ray Dif. ΔFf 1682.6 Infrared ĸ Viscosity Viscour, centistokes °C Solubility in c Acetone to Carbon tet. •c B. ene A' | 25 to 7.38662 Ether 5 B' 1125 °C 2019.1 n-Heptane вŸ Ethanol 214. ÃV i A<sup>1</sup>\* 25 to B<sup>1</sup>\* 125 °C •c Water 1.89434 Water in (BV) 1916.8 to Ac | 280 to 7.47391 5 (AV) °C Bc tc\_C 2229.9 •c cp liq. ۰ĸ 250. Cryos. A. c<sub>p</sub> vap. ۰ĸ consts. B° c, vap. te °C 5 265, 12  $T_R = 0.75 T_c$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det. data 5-Calc, by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

NAME	2-Ethyl-1, 2, 3, 4-Tetrahydronaphthalene						STRUCTURAL FORMULA			
Mole % Pur.	Ref.	Mol	ecula		Molecular Weight 160, 2	48	HC2H5 H2			
			Ref.		1	Ref.		<u> </u>	Ref.	
F.P. °C F.P. 100%			Kei	dt/dP *C/mm		IXEI.	f to g *K			
B. P. °C 760 mm 100 30	235. 160. 127.		2 5 5	25°C BP t <sub>e</sub> 30 mm	133.0 0.059 0.0368 0.8353	5 5 5	h   to g'   *K		H	
10 1 Pressure mm 25°C	101.		5	ΔHm cal/g ΔHv cal/g 25°C	89.34	5	m   to			
t <sub>e</sub> Density	1391.0	94	5	30 mm BP te	79.11 67.45 64.51	5 5	m' to		$\vdash$	
g/ml 20°C dt 25 d4 30	0. 9: 0. 9:	34 30	2 2 4	t <sub>e</sub> (d, e) ΔHv/T <sub>e</sub> d 125 to	64. 34 19. 25 92. 73	5 5	o' Surface tension			
a b Ref. Index			4	e 265 °C d' 25 to e' 125 °C	92.73 0.1076 91.85 0.1007	5 5	dynes/cm. 20°C 30 40	34,15 33,00 31,88	5 5 5	
n <sub>D</sub> 20°C	1.5 1.5 1.5	21	2 2 4	d g/ml vc ml/g tc °C	0.291 3.43 452.	5 5 5	Parachor [P] 20°C 30			
"C"	0.7	315	4	P <sub>c</sub> mm	20107.	5	40 Sugd.	412.7	5	
MR (Obs.) MR (Calc. (nD-d/2) Dielectric	) 51.8 1.0		2 5 2	PV/RT 25°C 30 mm BP	1.0000 1.0000 0.9499	5 5 5	Exp. L.1.%/wt. u. Dispersion Flash Point °C			
A 125 to B 300 °C C		3372	5 5 5	te tc ΔHc kcal/m	0.9308 0.245	5	Fire Point  M. Spec. Ultra V.			
A* 125 to B* 275 °C K		4946	5	ΔHf ΔFf Viscosity centistokes			X-Ray Dif. Infrared Solubility in		-	
t <sub>k</sub> to t <sub>x</sub> °C	;	8379	5	η •c			Acetone Carbon tet. Benzene Ether			
B'   25 °C	2013.2	9217	5	B <sup>V</sup> to A <sup>V</sup> C			n-Heptane Ethanol Water			
B'* 125 °C	7.4	3 7328	5	(B <sup>V</sup> )  to	-		Water in		<del> </del>	
Bc tc °C	250.		5	c liq. °K						
consts. B		5	5	c <sub>p</sub> vap. *K c <sub>v</sub> vap.						
$T_{\mathbf{R}} = 0.7$			1 3	u -	<u> </u>		grams/100 gra	ms solve	⊥— nt	
		Dow	2-A	PI 3-Lit. 4-	Calc. from de	et. di				
REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det. data 5-Calc. by formula  SOURCE: API										
PURIFICATION: API										
LITERATURE REFERENCES:										

No. 8 STRUCTURAL FORMULA NAME 5-Ethyl-1, 2, 3, 4-Tetrahydronaphthalene Molecular C12H16 Ref. Molecular Mole Weight 160, 248 % Pur Ref. Ref Ref. F.P. °C F.P. 100% dt/dP f to °C/mm •ĸ g 25°C 189.15 B. P. °C 0.0596 ВP 5 760 mm 242. 2 ſ 0.0368 5 to 100 166. g¹ °K 30 133. 5 30 mm 0.8449 5 10 107. h' ∆Hm cal/g 5 64 to ΔHv cal/g Pressure n •ĸ 25°C 91.58 0.0637 mm 25°C 0 30 mm 80.54 5 1404.61 5 t. BP 68.48 5 m to Density g/ml 20°C 65.43 5 te (d, e) •ĸ n' 0.973 2 5 65.21 ۰, 25 0.969 2 AHV/T ď4 19.24 5 30 0.965 4 Surface tension 1 135 đ 95.14 5 to 0.989 -0.0<sub>3</sub>80 dynes/cm. 20°C 39.54 5 5 **5** 1 270 •c 0.1102 ъ 4 30 38.26 37.01 à٠ to 94.15 25 40 •1 Ref. Index 135 0.1027 20°C m<sub>D</sub> 1.540 Parachor [P] d g/i
vc ml
tc \*C g/ml 0.307 5 25 ž 1.538 20°C ml/g 30 3.26 1.535 4 30 467. 5 40 "C" 0.7266 4 P<sub>c</sub> mm 21549. 5 Sugd. 5 412.7 MR (Obs.) 51.7 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 51.815 25°C 1.0000 (aD-d/2) 1.054 2 30 mm 1.0000 Dispersion 2 163. Dielectric BP 0.9464 5 Flash Point °C 0.9265 135 to 5 te 7.05506 5 Fire Point 0.244 <u>1320 °C</u> 1815.8 M Spec. C 193. ΔHc kcal/m Ultra V. ΔHf A\* | 135 to 1.53964 X-Ray Dif. ΔFf B+ 280 °C 1712.6 Infrared ĸ Viscosity Viscour, centistokes °C Solubility in Acetone Carbon tet. •c Benzene 25 to 7.40647 Ether 2051.8 B' [135 °C n-Heptane B<sup>V</sup> | 5 C١ 214. to Ethanol •c Water A1# 25 to 1.91149 5 Water in (BV) B'\* 135 °C 1949.2 5 to Ac | 320 to 7.50497 5 (AV) •c Bc tc\_C 2274.0 cp liq. ۰ĸ Cc 250. 5 Cryos. A\* •ĸ c<sub>p</sub> vap. consts. B° c, vap. f .C 5 271.7  $T_R = 0.80 T_c$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

TABLE VI. TETRAHYDRONAPHTHALENES

							No. 9	
NAME	6-Ethyl-1, 2	, 3, 4	-Tetra hydronap		STRUCTURAL FORMULA			
Mole % Pur.	Ref. Mol	lecular C <sub>12</sub> H <sub>16</sub>		Molecular Weight 160,248		H <sub>5</sub> C <sub>2</sub> H <sub>2</sub> H <sub>2</sub>		
		Ref.			Ref.			Ref.
F.P. *C F.P. 100%			dt/dP *C/mm			f to		
B.P. °C 760 mm 100 30	241. 165. 132.	2 5 5	25°C BP t <sub>e</sub> 30 mm	180.6 0.0595 0.0368 0.8432	5 5 5	g		
10	106.	5	ΔHm cal/g	0.0132	1	h'		
1	63.	5	ΔHv cal/g	<u> </u>	$\vdash$	m to		
Pressure mm 25°C t <sub>e</sub>	0.0668 1402.3	5	25°C 30 mm BP t	91.34 80.37 68.35 65.32	5 5 5	m' to		
g/ml 20°C dt 25 d <sub>4</sub> 30	0.9568 0.9531 0.9493	2 2 4	t <sub>e</sub> (d, e) ΔHv/T <sub>e</sub>	65.1 19.25	5	n'  K_		
a b	0.9716 -0.0 <sub>3</sub> 74	4 4	d 130 to e 270 °C d' 25 to	94.86 0.1100 93.91	5 5 5	Surface tension dynes/cm. 20°C 30	36.98 35.84	5
Ref. Index n <sub>D</sub> 20°C 25 30	1.5331 1.5310 1.5287	2 2 4	d <sub>c</sub> g/ml v <sub>c</sub> ml/g t <sub>c</sub> °C	0.1027 0.306 3.27 465.	5 5 5 5	40 Parachor [P] 20°C 30	34.74	5
"C"	0.7301	4	tc *C P <sub>c</sub> mm	21418.	5	40 Sugd.	412.7	5
MR (Obs.) MR (Calc.) (nD-d/2)	51.85 51.815 1.0547	2 5 2	PV/RT 25°C 30 mm	1,0000	5	Exp. L.1.%/wt. u. Dispersion	165.	2
A 130 to B 320 °C	7.05177 1810,2	5	BP te tc	0.9468 0.9271 0.244	5	Flash Point *C Fire Point		
A* 130 to B* 280 °C	193. 1.53647 1707.	5	ΔHc kcal/m ΔHf ΔFf			M. Spec. Ultra V. X-Ray Dif. Infrared		
Ktkto			Viscosity centistokes 7 °C			Solubility in + Acetone Carbon tet, Benzene		
A'   25 to B'   130 °C C'	7.40297 2045.5 213.	5 5	B <sup>V</sup> to A <sup>V</sup> 1 °C			Ether n-Heptane Ethanol Water		
A'* 25 to B'* 130 °C Ac  320 to	1.90862 1943. 7.50560	5	(B <sup>V</sup> )  to			Water in		-
Bc tc C	2270. 250.	5	c <sub>p</sub> liq. °K					
Cryos, A° consts, B°			c <sub>p</sub> vap. °K c <sub>v</sub> vap.					
t <sub>e</sub> °C T <sub>R</sub> = 0.80	270.58	5		1	لـــــا	L	L	1
		2 .	DI 2 1 4 4	Cala (=====	- 4 - 3	grams/100 gra		at
REFERENC	FO: 1-DOM	2-A		Calc. from d	et. da	ita 5-Calc, by for	muia	
SOURCE: PURIFICAT	ION:	AF						
	RE REFERE					· · · · · · · · · · · · · · · · · · ·		

No. 10 STRUCTURAL FORMULA NAME 1, 1-Dimethyl-1, 2, 3, 4-Tetrahydronaphthalene (CH<sub>3</sub>)<sub>2</sub> H<sub>2</sub> Molecular C12H16 Mole Ref. Molecular Weight 160, 248 Ĥ2 % Pur Ref Ref Ref. F.P. C F.P. 100% dt/dP f to °C/mm g °K 25°C 65.3072 5 B. P. °C h BP 0.0581 760 mm 221. 2 0.0367 5 f 100 to 147. 5 g' °K 30 115. 5 30 mm 0.8177 5 10 90. h' ∆Hm cal/g 48. 5 to m ΔHv cal/g Pressure °K n 25°C 84.50 mm 25°C 0.1998 5 o 30 mm 76.05 5 1365.05 t<sub>e</sub> 5 BP 65.39 5 to m Density g/ml 20°C te te (d, e) 62,72 5 ٠ĸ 'n 0.950 2 62.63 5 ٥' 0.946 dt4 25 2 ΔHv/T<sub>e</sub> 19.27 5 30 0.942 4 Surface tension 115 to 87.54 0.966 dynes/cm. 20°C 35.94 5 1 250 0.1002 •c 5 Ъ -0.0380 4 30 34.74 5 ď٠ 25 to 86.86 1 40 33,57 5 e' Ref. Index 115 0.0943 5 n<sub>D</sub> 20°C 1.5292 2 [P] Parachor d g/ml vc ml/g tc °C 0.297 5 25 1.5271 20°C 2 3.37 30 1.5243 4 30 5 435. 40 "C" 0.7300 4 P<sub>c</sub> mm 5 20018. 5 Sugd. 412.7 MR (Obs.) 52.0 2 PV/RT Exp. L. l. %/wt. MR (Calc.) 51.815 25°C 1.0000 5 (nD-d/2) 1.0545 30 mm 1.0000 5 Dispersion Dielectric BP 0.9577 5 Flash Point °C 0.9404 t<sub>e</sub> 115 to 6.99492 Fire Point  $t_c$ 0,245 B 1315 °C 1719.7 M Spec. C 197. AHc kcal/m Ultra V ΔHf A\* | 115 to 1.47633 X-Ray Dif. ΔFf B+ 260 °C 1613.8 Infrared Viscosity Solubility in c centistokes Acetone to •C Carbon tet Benzene A' | 25 to 7.34254 Ether B' (115 °C 1943.2 n-Heptane  $\mathbf{B}^{\overline{\mathbf{v}}}$ C 217. to Ethanol  $\tilde{\mathbf{A}}^{\mathbf{v}}$ •c Water A'\* 25 to B'\* 115 °C 1.85606 5 Water in (BV) 1841.3 5 to Ac | 320 to 7.46083 5 (AV) °C 2180. Bc tc\_C cp liq. ۰ĸ Сc 255. Cryos. A. c<sub>p</sub> vap. ۰ĸ consts. B° c, vap. te .C 5 248.54  $T_R = 0.80 T_c$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

TABLE VI. TETRAHYDRONAPHTHALENES

Mole % Pur.  F.P. °C F.P. 100% B.P. °C 760 mm 100 30 10	Ref. Mol For	lecular mula	12"16	Molecular Weight 160.2		STRUCTURAL FORMULA HCH3 HCH3			
% Pur. F.P. °C F.P. 100% B.P. °C 760 mm 100 30	235.	mula	12"16		40	H <sub>2</sub>			
F. P. 100% B. P. °C 760 mm 100 30	235. 160.	Ref.			40	1 1 1			
F. P. 100% B. P. °C 760 mm 100 30	235. 160.			l	Ref.	.   R			
760 mm 100 30	160.	$\vdash$	dt/dP °C/mm			f to g •K			
10	126.	2 5 5	25°C BP t <sub>e</sub> 30 mm	127. 2 0. 0593 0. 0373 0. 8377	5 5 5	h   to g'  *K			
<u> </u>	101. 58.	5	ΔHm cal/g ΔHv cal/g	<del> </del>	-	h'   to			
Pressure mm 25°C	0.0976 1403.8	5	25°C 30 mm BP	88.45 78.7 67.55	5 5 5	n   - *K   m'   to			
Density g/ml 20°C d <sup>t</sup> 25 d <sub>4</sub> 30	0.9470 0.9433 0.9396	2 2 4	t <sub>e</sub> (d, e) ΔHv/T <sub>e</sub>	64.65 64.52 19.26	5 5	n'   •K_			
a b	0.9618 -0.0 <sub>3</sub> 74	4 4	d 125 to e 265 °C d 25 to	91.35	5 5 5	Surface tension dynes/cm. 20°C 35.48 30 34.39 40 33.32			
Ref. Index n <sub>D</sub> 20°C 25 30		2 2 4	e'   125 °C  d g/ml vc ml/g tc °C	0.1003 0.298 3.35 456.	5 5 5	Parachor [P] 20°C 30			
"C"	0.7318	4	P <sub>c</sub> mm	20640.	5	40 Sugd. 412.7			
MR (Obs.) MR (Calc. (nD-d/2)	) 51.815 1.0551	2 5 2	PV/RT 25°C 30 mm	1.0000	5	Exp. L.1.%/wt. u. Dispersion			
Dielectric A 125 to	7.00994	5	BP te tc	0.9566 0.9382 0.244	5 5 5	Flash Point *C Fire Point			
B   290 °C C A*  125 to	194.	5 5	ΔHc kcal/m ΔHf			M. Spec. Ultra V. X-Ray Dif.			
B*  275 °C K c t <sub>k</sub>	1663.7	5	Viscosity centistokes			Infrared  Solubility in Acetone Carbon tet. Benzene			
A'   25 to B'   125 °C C'	2001.6 214.	5 5 5	B <sup>v</sup> to		+	Ether n-Heptane Ethanol Water			
A'* 25 to B'* 125 °C Ac  290 to	7, 48207	5 5	(B <sup>V</sup> )  to	1		Water in			
Bc tc °C	2252. 255.	5	c <sub>p</sub> liq. °K						
Cryos. A° consts. B°	<u>'                                    </u>	Ļ	c <sub>p</sub> vap. °K						
t <sub>e</sub> *C	264.60	5				+ ===== /100 grams solves			
T <sub>R</sub> = 0.8		- 4	DY 2 Lie 4	Cala from d	4	grams/100 grams solvent			
	CES: 1-Dow		PI 3-Lit. 4	-Caic. from u	et. u	lata 5-Calc, by formula			
SOURCE:									
PURIFICA			PI						
LITERATU	JRE REFERE	NCE	S:						

\* 1, trans-2-Dimethyl-1, 2, 3, 4-Tetrahydronaphthalene (same data)

No. 12 \*STRUCTURAL FORMULA NAME 1, cis-3-Dimethyl-1, 2, 3, 4-Tetrahydronaphthalene HCH<sub>3</sub> H<sub>2</sub> Molecular C12H16 нсн3 Ref. Molecular Mole Weight 160.248 H<sub>2</sub> % Pur Ref Ref Ref. F.P. \*C dt/dP ſ to \*C/mm 25\*C °K g 118.34 B. P. °C h BP 0.0594 5 760 mm 234. 159. 125. 2 5 5 0.0368 ſ to 100 g' •ĸ 30 5 30 mm 0.8377 5 10 100. 5 h' ∆Hm cal/g 57. 5 to ΔHv cal/g Pressure n •ĸ 25°C 88.11 mm 25°C 0.1058 5 0 30 mm 78.31 5 1400.6 te 5 5 BP 67.26 to Density g/ml 20°C m te te (d, e) 64.38 5 •ĸ 'n 0.940 2 64.27 5 01 25 30  $\mathbf{d_4^t}$ 0.936 2 AHV/T 5 19.22 0.932 4 Surface tension 125 to 91.01 5 0.956 -0.0<sub>3</sub>80 dynes/cm. 20°C <u>•c</u> <u>265</u> 0.1015 5 Ъ 4 33.29 32.16 5 30 25 to 90.56 5 40 e' Ref. Index 125 0.0979 **n**D 20°C 1,525 2 [P] Parachor d<sub>c</sub> g/ml 0.29 5 5 25 1.523 2 20°C v c **t** c ml/g 3.45 30 1.520 4 30 °C 451. 5 40 "C" 0.7325 4 P<sub>c</sub> mm 19905. 5 Sugd 412.7 5 MR (Obs.) 52.3 2 PV/RT Exp. L. 1. %/wt. MR (Calc.) 51.815 25°C 1.0000 5 (nD-d/2) 1.055 2 30 mm 1,0000 5 Dispersion Dielectric BP 0.9564 5 Flash Point °C 0.9380 5 T<sub>125</sub> to 7.00994 5 Fire Point tç 0.244 L305\_°C 1771.4 M Spec. С 195. AHc kcal/m Ultra V ΔHf A\* | 125 to 1.48249 5 X-Ray Dif. ΔFf B\* 1275 °C 1663.5 Infrared Viscosity Solubility in c centistokes Acetone to °C •c Carbon tet. Benzene A' 25 to 7.35851 Ether B' (125 °C 2001.6 n-Heptane c' 215. 5 В Ethanol to  $\tilde{\mathbf{A}^{\mathbf{v}}}$ •c Water 1.86697 A'\* 25 to B'\* 125 °C 5 1899.1 Water in (BV) 5 to Ac | 305 to 7.48945 5 (AV) •<u>с</u> 2252.5 Bc tc C cp liq. ۰ĸ Cc 255. 5 Cryos. A' c<sub>p</sub> vap. consts, B° r° .C c, vap. 263.49 5  $T_{\mathbf{R}} = 0.80 T_{\mathbf{c}}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES: \* 1, trans-3-Dimethyl-1, 2, 3, 4-Tetrahydronaphthalene (same data)

TABLE VI. TETRAHYDRONAPHTHALENES

							No. 13	<u> </u>	
NAME	l, cis-4-Dime	thyl-	1, 2, 3, 4-Tetra	hydronaphthal	ene	* STRUCTURAL FORMULA			
						→ H	CH₃ ``H2		
Mala	Pot Ma	1		Malasulas			H <sub>2</sub>		
Mole Ref. Mol % Pur. For		ecular C <sub>12</sub> H <sub>16</sub>		Molecular Weight 160, 248		HCH <sub>3</sub>			
		Ref.			Ref.			Ref	
F. P. *C			dt/dP			f to			
F. P. 100	76	-	°C/mm 25°C	118, 34	5	g <u>*K</u>			
B. P. *C 760 mm	234.	2	BP	0.0594	5	h		-	
100 30	159. 125.	5	t <sub>e</sub> 30 mm	0.0368 0.8377	5	f' to g'*K			
10	100.	5	ΔHm cal/g	0.8377	+	h'			
1	57.	5	ΔHv cal/g	<del> </del>	+	m to			
Pressure mm 25°C	0,1058	5	25°C	88.11	5	n•K_			
t <sub>e</sub>	1400.65	5	30 mm BP	78.31 67.26	5	m¹ to		-	
Density g/ml 20°	C 0,940	2	t <sub>e</sub> (d, e)	64.38 64.27	5	n'ı l •ĸ			
dt 25	0.936	2	ΔHv/Te	19.22	5	;			
	0.932	4	d 125 to	<del></del>	5	Surface tension		Π	
a b	0.956 -0.0 <sub>3</sub> 80	4 4	e   265 °C	0.1015	5	dynes/cm. 20°C	34.45 33,29	5	
Ref. Inde:			d'   25 to e'   125 °C		5	40	32.16	5	
<sup>n</sup> D 20°	C 1.525 1.523	2 2	d <sub>c</sub> g/ml	0.29	5	Parachor [P]			
30	1.520	4	v <sub>c</sub> ml/g t <sub>c</sub> °C	3,45 451.	5	30			
"C"	0.7325	4	P <sub>c</sub> mm	19905.2	5	40 Sugd.	412.7	5	
MR (Obs. MR (Calc		2 5	PV/RT		+	Exp. L.1.%/wt.		$\vdash$	
(nD-d/2)	1.055	2	25°C 30 mm	1.0000	5	u. Dispersion			
Dielectric	e		BP	0.9564	5	Flash Point *C		+-	
A 125 to		5	t e t c	0.9380 0.244	5	Fire Point			
B 1_305 °C	195.	5	AHc kcal/m	+	+-	M. Spec.			
A* 125 to		5	ΔHſ ΔFſ		İ	Ultra V. X-Ray Dif.			
B*  275 °C	C 1663. 5	5	Viscosity	<b></b>	<del>                                     </del>	Infrared	ļ	┼	
:	_		centistokes			Solubility in Acetone			
t <sub>k</sub> to			η •c		1	Carbon tet. Benzene		ŀ	
A'   25 to	0 7, 35851	5				Ether			
B'   125 °	C 2001.6 215.	5	B <sup>v</sup> to	1	1	n-Heptane Ethanol			
A1# 25 to	0 1.86697	5		_	1	Water			
B'* 125 *		5	(B <sup>V</sup> )  to			Water in	<del>                                     </del>	+-	
Acl 305 to		5	(A <sup>V</sup> )  °C	+	∔	1			
C. C.	255.	5	c <sub>p</sub> liq. *K						
Cryos. A consts. B			c <sub>p</sub> vap. *K						
t <sub>e</sub> °C	263.49	5	c <sub>v</sub> vap.						
$T_{\mathbf{R}} = 0.$	80 T <sub>C</sub>					grams/100 gra	ms solver	nt	
REFEREN	ICES: 1-Dow	2-A	PI 3-Lit. 4	-Calc, from d	et. da	ata 5-Calc. by for	mula		
SOURCE:		AF							
PURIFICA		AF							
LITERAT	URE REFERE	NCE	S:						
* 1, trans	-4-Dimethyl-1	, 2, 3	,4-Tetrahydro	naphthalene (s	ame	data)			

No. 14 STRUCTURAL FORMULA 2, 2-Dimethyl-1, 2, 3, 4-Tetrahydronaphthalene NAME H2 (CH<sub>3</sub>)<sub>2</sub> Molecular C12H16 Molecular Weight 160.248 Mole Ref. Ĥ2 % Pur Formula Ref. Ref Ref. <u>F.</u>P. dt/dP to F.P. 100% °C/mm g °K 25°C 103.43 5 B. P. \*C h BP 0.0586 5 760 mm 230. 2 5 t<sub>e</sub> ſ١ 0.0371 5 to 100 155. g¹ <u>•</u>K 122. 30 5 30 mm 0.8287 5 97. 10 h' ∆Hm cal/g 55. 5 to ΔHv cal/g m 1 Pressure •K 25°C n 87.66 mm 25°C 0.1216 30 mm o 78.06 5 te 1362.4 5 BP 66.00 5 m' to Density 5 te (d, e) 63.13 g/ml 20°C •ĸ 0.935 5 62.89 0.931 2  $\mathbf{d_{4}^{t}}$ AHv/Te 19.05 5 30 0.927 4 Surface tension T 120 5 to 91.79 0.9510 dynes/cm. 20°C 33,72 5 <u>260</u> •c 0.1121 5 -0.0380 Ъ 4 32,58 30 5 25 to 90.13 1 5 40 31.47 Ref. Index e' •c 0.0986 120 5 20°C [P] 1,5200 2  $\mathbf{n}_{\mathbf{D}}$ Parachor d<sub>c</sub> v<sub>c</sub> t<sub>c</sub> g/ml 0.288 5 25 1.5180 2 20°C ml/g 30 3.47 5 1.5160 4 30 •c 443. 5 40 "C" 0.7299 4 P<sub>c</sub> mm 19678. 5 Sugd. 412.7 5 MR (Obs.) 52.1 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 51,815 25°C 1.0000 5 (nD-d/2)1.0525 u. 2 30 mm 1.0000 Dispersion 0.9419 Dielectric ВP Flash Point °C 0.9224 te 5 120 to 7.02175 Fire Point tç 0,245 1759.9 1300 °C M Spec. 195. C ΔHc kcal/m Ultra V. ΔHf A# | 120 to 1.52426 X-Ray Dif. ΔFf B\* 270 °C 1661.5 Infrared ĸ Viscosity Solubility in centistokes Acetoné t<sub>k</sub> | to Carbon tet. •c Benzene 7.37106 25 to A' Ì Ether 1988.6 120 °C 5 n-Heptane BV I 215. to Ethanol AV A'+ 25 to •c Water 1.88123 Water in (BV) B'# 120 °C 1886, 6 to Ac | 300 to 7.47722 5 (AV) **°**C Bc tc C 2206. cp liq. ۰ĸ Cc 250. Cryos. A. ۰ĸ cp vap. consts. B° c, vap. te °C 257,72 5  $T_{R} = 0.80 T_{C}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API **PURIFICATION:** API LITERATURE REFERENCES:

No. 15 2, cis-3-Dimethyl-1, 2, 3, 4-Tetrahydronaphthalene NAME STRUCTURAL FORMULA Ηz HCH<sub>3</sub> Molecular C12H16 HCH<sub>3</sub> Mole Ref. Molecular Weight 160.248 % Pur. H<sub>2</sub> Ref. Ref. .c dt/dP ſ to F.P. 100% °C/mm ١ ۰ĸ g 25°C 113.09 5 B. P. °C h 0.0588 RP 760 mm 232. 2 t<sub>e</sub> 5 0.0372 ſ١ to 100 157. 5 •<u>к</u> g' 5 5 30 124 30 mm 0.8320 10 99. 5 h' ∆Hm cal/g 56. m to ∆Hv cal/g Pressure n •ĸ 25°C 88.13 mm 25°C 0.11064 o 30 mm 78.39 5 1365.3 5 t<sub>e</sub> BP 62, 20 m' to Density 63.30 'n te (d, e) •ĸ ١ g/ml 20°C 0.940 63.05 5 0 25 0.936  $d_4^t$ AHv/T 19.03 5 30 0,932 4 Surface tension 125 92.38 5 to 0.9560 -0.0380 dynes/cm. 20°C 34, 45 a 260 °C 25 to 0.1128 5 ь 33.29 32.16 5 30 ď 90.59 5 40 0.0984 Ref. Index e١ 125 °C 5 20°C 1.523 2 Parachor [P] n<sub>D</sub> d<sub>c</sub> g/ml 0.291 5 25 1,521 2 20°C 3, 44 vc ml/g t\_ C 30 1.518 4 30 447. ŧċ 5 40 "C" 0.7299 4 P<sub>c</sub> mm 19872. 5 5 412.7 Sugd. MR (Obs.) 52.1 2 PV/RT Exp. L.1.%/wt. 51.815 MR (Calc.) 1.0000 5 25°C (nD-d/2)1.053 2 1.0000 30 mm Dispersion Dielectric BP 0.9404 5 Flash Point C te t<u>c</u> 0.9205 5 A 125 to 7.02764 5 Fire Point 0.244 5 1770.7 B 1\_300 °C M. Spec. C 195. 5 AHc kcal/m Ultra V. ΔHf A\* 125 to 1.53111 5 X-Ray Dif. ΔFf B\*|\_270 °C 1672.6 Infrared K Viscosity Solubility in centistokes Acetone to Carbon tet. °C Benzene 7.37732 A' I 25 to 5 Ether B' | 125 °C B<sub>v</sub> | 2000.8 5 n-Heptane C١ Ethanol 215. to °C Water A'\* 25 to 1.88684 5 Water in B'\* 125 °C (B<sup>V</sup>) 1898.6 to 5 Acl 300 to (A V) 7.47040 5 °C Bc \_tc\_ °C 2211. cp liq. ۰ĸ Сc 250. Cryos. A\* c<sub>p</sub> vap. •ĸ consts. B. c, vap. te .\*C 259.91 5  $T_{\mathbf{R}} = 0.80 \, T_{\mathbf{C}}$ grams/100 grams solvent 5-Calc. by formula REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data API SOURCE: API PURIFICATION: LITERATURE REFERENCES: \* 2, trans-3-Dimethyl-1, 2, 3, 4-Tetrahydronaphthalene (same data)

No. 16 \* STRUCTURAL FORMULA 1,5-Dimethyl-1,2,3,4-Tetrahydronaphthalene NAME HCH<sub>3</sub> Molecular C12H16 Mole Ref. Molecular % Pur Weight 160, 248 H<sub>3</sub>C н, Ref. Ref F, P. \*C F, P. 100% dt/dP to °C/mm <u>°</u>K g 25°C 5 159.34 B. P. \*C h 0.0594 BP 5 760 mm 239. 2 0.0373 5 ſ١ t<sub>e</sub> to 100 5 164. g' •ĸ 30 130. 5 30 mm 0.8419 5 10 104. 5 h' ∆Hm cal/g 61. to ΔHv cal/g m Pressure •K 25°C 30 mm n 90.28 mm 25°C 0.0767 ٥ 5 79.76 t<sub>e</sub> 1374.86 5 BP 67,00 5 m to Density 63.97 5 te te (d, e) n' •ĸ g/ml 20°C 0.941 2 63.66 5 ۰' 0.937 2 ď4 AHV/T 5 18.96 30 0.933 4 Surface tension 130 94.94 5 0.957 4 dynes/cm. 20°C 34.59 a b 270 •c 0.1169 92.78 5 -0.0380 4 a٠٦ 30 33.43 5 to 5 1 2.5 40 32.30 5 Ref. Index ·c 0.1003 e¹ 130 5 1.526 20°C [P] n<sub>D</sub> 2 Parachor d<sub>c</sub> g/ml 0.291 5 25 2 1.524 20°C vc ml/g 5 3.44 30 1.521 4 30 •c tc 456. 40 "C" 0.7331 4 P 5 Sugd. 5 mm 20050. 412.7 PV/RT MR (Obs.) 52.3 2 Exp. L.1.%/wt. 51.815 MR (Calc.) 5 25°C 1.0000 5 (nD-d/2) 1.053 2 30 mm 1.0000 Dispersion Dielectric BP 0.9348 5 Flash Point °C 0.9139 t, A 130 to Fire Point 7,0457 5 0.243 5 1803.4 \_31<u>0 °C</u> M Spec. C 5 AHc kcal/m 194. Ultra V. ΔHſ A\* | 130 to 1.55344 5 X-Ray Dif. ΔFf B+ 280 °C 1707.3 Infrared Viscosity ĸ Solubility in centistokes Acetone to <u>د</u> ا Carbon tet. •c Benzene A' 25 to 7.39652 Ether B' 1130 °C 2037.8 n-Heptane ВŸ 214. 5 to Ethanol °C Water A1# 25 to 1.9023 5 Water in B'# 130 °C (BV) 1934.9 to Ac | 310 to 7,5032 5  $(A^{V})_{I}$ °C Bc tc C 2260. liq. ۰ĸ c<sub>D</sub> Cc 250. Cryos. A. c<sub>p</sub> vap. •ĸ consts. B° c, vap. te .C 267,53 5  $T_{\mathbf{R}} = 0.80 \, T_{\mathbf{c}}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API **PURIFICATION:** API LITERATURE REFERENCES: 1, 6-Dimethyl-1, 2, 3, 4-Tetrahydronaphthalene (same data); 1, 7-Dimethyl-1, 2, 3, 4-Tetrahydronaphthalene (same data); 1, 8-Dimethyl-1, 2, 3, 4-Tetrahydronaphthalene (same data).

NAME 2	5-Dime	thyl	-1 2	3,4-Tetrahydr	ona nhtha le ne		STRUCTURAL	No. 17	
NAME 2	, , , , , , , , , , , ,	,.	, - ,	3, 1-1ettanyut	ona pittia tene		SIKOCIOKAL H		^
<del>_</del>								∖нсн₃	
Mole	Ref.	Mol	ecul	ar C u	Molecular	-	$\sim$	JH₂	
% Pur.	<u>l</u>	For	mula		Weight 160,24	8	H₃C H	2	
			Ref.		<b></b>	Ref.			Ref.
F. P. °C	ļ			dt/dP			f to		
F.P. 100%			-	*C/mm 25*C	139.05	5	g '° <u>K</u>		
B. P. *C 760 mm	236.		2	BP	0.0591	5	h		_
100	161.		5	t <sub>e</sub>	0.0371	5	f' to		
30 10	127. 102.		5	30 mm	0.8370	5	h'   <u></u>		
1	59.		5	ΔHm cal/g	ļ	ļ	m to		-
Pressure				ΔHv cal/g 25°C	89, 56	5	n °K		
mm 25°C	0.08 1378.4	385	5	30 mm	79.26	5			
t <sub>e</sub> Density	1370.4		-	BP	67.00 64.03	5	m' to		
g/ml 20°C	0.94	16	2	t <sub>e</sub> (d, e)	63.78	5	n'   LK_	1	1
dt 25	0.94		2	AHv/Te	19.08	5	°.		
	0.93		4	d 125 to	93.66	5	Surface tension		_
a b	-0.96		4	_e_ _2 <u>65</u>	0.113	5	dynes/cm. 20°C	35.33 34.15	5
Ref. Index			$\Box$	d' 25 to e' 125 °C	92.08 0.1006	5	40	33.00	5
n <sub>D</sub> 20°C	1.52		2	d <sub>c</sub> g/ml	0, 293	5	Parachor [P]		
25 30	1.52		2 4	V_ mi/g	3.41	5	20°C 30		
"C"	0.72		4	tc *C	454.	5	40		
MR (Obs.)	52.0		2	P <sub>c</sub> mm	20330.	5	Sugd.	412.7	5
MR (Calc.)	51.81		5	PV/RT 25°C	1,0000	5	Exp. L.1.%/wt. u.		
(nD-d/2)	1.05	3	2	30 mm	1.0000	5	Dispersion		
Dielectric				BP	0.9414	5	Flash Point C		
A 125 to B   310 °C	7.03 1786.9	3639	5	t e t c	0.9213 0.244	5	Fire Point		<u> </u>
c -3.0_0_	194.		5	∆Hc kcal/m		†	M. Spec.	1	1
A* 125 to	1.53	1495	5	ΔHf ΔFf			Ultra V. X-Ray Dif.	İ	
B* _2 <u>75°C</u>   K	1687.7		5	Viscosity		$\vdash$	Infrared		ļ
c				centistokes			Solubility in +		1
tk to	Ì		1	η ·c			Acetone Carbon tet.		1
A'  25 to	7, 38	662	5				Benzene		
B' 125 °C	2019.1	002	5		<u> </u>		Ether n-Heptane		ŀ
<u>c'                                    </u>	214.		5	B <sup>V</sup> to *C		ļ	Ethanol		
A'* 25 to B'* 125 °C	1.89	434	5		-}		Water Water in		
Ac 310 to	7.50	1565	5	(B')  to					T
Bc tc *C	2268.3	,,,,,	5		<del> </del>	+			
Cc — —	255.		5	P		1			
Cryos. A° consts. B°				c <sub>p</sub> vap. *K					
t <sub>e</sub> °C	264.5	3	5	c <sub>v</sub> vap.	1	1			
$T_{R} = 0.80$	Tc						grams/100 gra	ms solver	nt
REFERENC	ES: 1-I	)ow	2-A	PI 3-Lit. 4-	Calc. from de	t. da	ta 5-Calc, by for	mula	
SOURCE:			API						
PURIFICAT	ION:		API						
LITERATUE	E REF	ERE	NCE	S:					

No. 18 2, 6-Dimethyl-1, 2, 3, 4-Tetrahydronaphthalene STRUCTURAL FORMULA NAME HCH<sub>3</sub> Molecular C12H16 Ref. Molecular Mole Ĥ2 % Pur. Weight 160.248 Ref Ref Ref F.P. \*C F.P. 100% dt/dP to °C/mm <u>°</u>K g 25°C 152.40 B. P. \*C h BP 0.0593 5 760 mm 238. 2 ſ١ 0.0372 to 100 162. 5 5 g¹ •K 30 mm 30 0.8402 5 129. 10 5 103. h' ∆Hm cal/g ١ 60. 5 to ١ ΔHv cal/g Pressure ۰ĸ n 25°C 90.05 mm 25°C 0.0804 5 0 30 mm 79.60 5 1375.8 5 t<sub>e</sub> BP 5 67.00 m to Density g/ml 20°C 63.99 5 te te (d, e) •K 0.941 0.937 2 5 63,70 o' ď4 ΔHv/Te 19.01 5 30 0.933 4 Surface tension 0.763 -0.0380 d 130 94.53 5 to dynes/cm. 20°C 34.59 <u>265</u> <u>•c</u> 0.1157 Ъ 4 30 33.43 32.30 5 ď to 25 92.56 5 40 e¹ Ref. Index 130 0.1004 4 20°C 1.526  $\mathbf{n}_{\mathbf{D}}$ Parachor [P] d g/ml vc ml/g tc °C 0.290 5 25 20°C 1.524 2 5 3.45 30 1.521 4 30 5 455. 40 "C" 0.7331 4 P<sub>c</sub> mm 20064. 5 Sugd 412.7 5 MR (Obs.) 52.4 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 51,815 5 25°C 1.0000 5 (nD-d/2)1.056 30 mm 1.0000 Dispersion Dielectric BP 0.9369 Flash Point °C 0.9162 0.244 5 te 130 to 7.04307 Fire Point [310 °C 1798.1 M Spec. C 194. AHc kcal/m Ultra V ΔHf A\* | 130 to 1.54794 X-Ray Dif. ΔFſ B\* 275 °C 1701.0 Infrared Viscosity Solubility in c centistokes Acetone to Carbon tet. •c Benzene A' | 25 to 7.39373 Ether B' [130 °C 2031.8 n-Heptane  $\mathbf{B}^{\overline{\mathbf{v}}}$ C' 214. 5 Ethanol  $\tilde{\mathbf{A}}^{\mathbf{V}}$ to •c Water A1# 25 to 1.90013 Water in B'\* 130 °C (BV) 1929.1 to (AV) Ac | 310 to 7.52365 °C Bc tc C 2287.8 cp liq. ۰ĸ Cc 255. Cryos. A\* •ĸ cp vap. consts. B° t° .C c, vap. 266,52 5  $T_{R} = 0.80 T_{c}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API **PURIFICATION:** API LITERATURE REFERENCES:

NAME	2, 7 - Dia	methy	-1,2	, 3, 4-Tetrahyd	rona phtha lene		STRUCTURAL I		.A
Mole % Pur.	Rei	f. Mo	ecul:		Molecular Weight 160.2	48	H <sub>2</sub>	H <sub>2</sub>	
			Ref.			Ref.			Ref.
F. P. *C				dt/dP			f to		
F.P. 100%				°C/mm			g  •K		j
B. P. *C				25°C	145.6	5	h		]
760 mm	237.		2	BP	0.0592 0.0372	5	f' to		_
100 30	162.		5	t <sub>e</sub>	1	5	g'*K		
10	103.		5	30 mm	0.8386	-	h'=		1
1	60.		5	ΔHm cal/g			m to		+-
Pressure				ΔHv cal/g		_	n eK		1
mm 25°C		0843	5	25°C 30 mm	89.81 79.43	5	0		
t <sub>e</sub>	1377.2	<u> </u>	5	BP	67.00	5	m¹ to		├-
Density				t <sub>e</sub>	64.01	5	m' to K		1
g/ml 20°C		941 937	2	te (d, e)	63.74	5			1
d <sub>4</sub> 25		933	4	ΔHv/T <sub>e</sub>	19.04	5	<del></del>		<del>-</del>
a	+	957	4	d 130 to	94.09	5	Surface tension dynes/cm, 20°C	34. 31	5
ь		380	4			5	30 30	33, 43	5
Ref. Index	<b>†</b>			d' 25 to e' 130 °C	92.32 0.1005	5 5	40	33.3	5
n <sub>D</sub> 20°C		526	2		0, 291	5	Parachor [P]		Ī
25		524	2	d g/ml v ml/g	3, 43	5	20°C		
30	<del> </del>	522	4	tc *C	454.	5	30 40		
"C"		7331	4	P <sub>c</sub> mm	20070.	5	Sugd.	412.7	5
MR (Obs.) MR (Calc.			2	PV/RT	1	1	Exp. L.1.%/wt.		
(nD-d/2)		315 056	5 2	25°C	1.0000	5	u.		l
Dielectric	+		H	30 mm BP	1.0000 0.9392	5	Dispersion		
A 130 to	+		-	t <sub>e</sub>	0.9188	5	Flash Point C		İ
B   310°C		3974	5	t <sub>c</sub>	0.244	5	Fire Point		↓
c	194.		5	ΔHc kcal/m			M. Spec.		
A* 130 to	1.5	54142	5	ΔHf			Ultra V. X-Ray Dif.		1
B* 275 °C	1694.4	ŧ	5	ΔFf	<del> </del>	+	Infrared		
K				Viscosity centistokes			Solubility in +		
t <sub>k</sub>   -to	-		1	η ····································			Acetone		1
Ç   °C			1	<b>'</b>			Carbon tet. Benzene		
A'   25 to		3902	5				Ether		
B'   1 30 °C		5	5	PV .	<b>†</b>		n-Heptane		
	214.		5	B <sup>V</sup> to *C			Ethanol Water		1
A'* 25 to B'* 130 °C		39724	5	(B <sup>V</sup> )  to	-		Water in		1
Ac  310 to	+	51735	5	11					T
Bc tc °C			5		+	+			1
Ce C	255.		5	c <sub>p</sub> liq. *K					
Cryos. A° consts. B°				c <sub>p</sub> vap. °K					
t <sub>e</sub> °C	265.	53	5	c <sub>v</sub> vap.					1
$T_{R} = 0.8$	0 T <sub>C</sub>			*	•		grams/100 gran	ns solver	nt
REFEREN		Dow	2-A	PI 3-Lit. 4-	Calc. from d	et. da			
SOURCE:			AI						
PURIFICA	TION ·		AI						
LITERATU		FERF							
			- · • • • • • • • • • • • • • • • • • •						

No. 20 STRUCTURAL FORMULA NAME 2, 8-Dimethyl-1, 2, 3, 4-Tetrahydronaphthalene H<sub>3</sub>C H2 HCH<sub>3</sub> Molecular Molecular Mole Ref.  $C_{12}H_{16}$ % Pur Formula Weight 160.248 Hg Ref. Ref dt/dP f to F.P. 100% °C/mm g <u>°K</u> 25°C 139.05 5 B. P. °C h ВP 0.0591 760 mm 236. 2 0.0371 5 ſ١ 100 161. ŧ. to g' \_K 5 127. 30 30 mm 0.8370 5 5 10 102 h' ∆Hm cal/g 59. 5 to ΔHv cal/g m Pressure •ĸ n 25°C 89.57 mm 25°C 0.0885 o 30 mm 79.26 te 1378.5 5 ВP 67,00 5 m' 1 Density g/ml 20°C 64.03 te (d, e) 5 n' •ĸ 5 0.941 2 63.78 ۰, 25 0.937 d4 2 AHV/T 19.08 5 30 0.933 4 Surface tension Т 125 93.66 5 0.957 -0.0<sub>3</sub>80 44 5 dynes/cm. 20°C 34.59 <u>265</u> 25 •c 0.1130 ъ 30 33.43 5 ŧ0 •C 92.08 1 40 32.30 5 Ref. Index e' 125 0.1006 5 1.526 20°C [P] 2 n<sub>D</sub> Parachor d<sub>c</sub> g/ml 0.291 5 25 30 2 1.524 20°C t<sub>c</sub> ml/g 5 3.43 1.521 4 30 •c 453. 5 40 "C" 0.7331 4 20079. 5 P<sub>c</sub> mm 412.7 5 Sugd. 52.4 MR (Obs.) 2 PV/RT Exp. L. 1. %/wt. MR (Calc.) (nD-d/2) 51.815 5 1.0000 25°C 5 u. 1.056 2 30 mm 1,0000 Dispersion Dielectric BP 0.9414 5 Flash Point °C t<sub>e</sub> 0.9214 A | 125 to 7.03639 Fire Point 0.244 tc 1786.9 1310 °C M Spec. C 194. 5 AHc kcal/m Ultra V ΔHf A\* | 125 to 1.53489 5 X-Ray Dif. ΔFf B+ 275 °C 1687.7 Infrared ĸ Viscosity Solubility in centistokes Acetone to t<sub>x</sub> | Carbon tet. •c Benzene A' 25 to 7.38662 Ether B١ 2019.1 \_125 °C n-Heptane ВŸ 214. 5 Ethanol A<sup>1</sup>\* 25 to B<sup>1</sup>\* 125 °C •c Water 1.89434 5 (B<sup>V</sup>) Water in 1916.8 to Ac | 310 to 7.51022 5  $(A^{V})$ °C Bc tc C 2270.9 liq. ۰ĸ Сp Cc 255. Cryos. A. c<sub>p</sub> vap. ۰ĸ consts. B° c, vap. f .C 264.53 5  $T_{\mathbf{R}} = 0.80 \, T_{\mathbf{c}}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

							No. 21	
NAME	5,6-Dimethy	1-1,2	, 3, 4-Tetrahyd	rona phtha lene		STRUCTURAL		A
						<b>✓</b>	2 \H2	
Mole	Ref. Mo	lecul		Molecular		H <sub>a</sub> C	H <sub>2</sub>	
% Pur.	Fo	rmuk		Weight 160.2	48	н₃с н	2	
		Ref.			Ref.			Ref.
F, P. °C	,	ļ	dt/dP			f to		
F.P. 1009	•		*C/mm 25*C	320.5	5	g ' <u>*K</u>		
B. P. *C 760 mm	252.	2	BP	0.0603	5	h		₩
100 30	175. 141.	5	t <sub>e</sub>	0.0370	5	f' to		
10	115.	5	30 mm	0.8576	-	h'		
1	71.	5	ΔHv cal/g	<del> </del>	-	m to		
Pressure mm 25°C	0, 03616	5	25°C	95.14	5	n   <u>*K</u>		1
te	1411.6	5	30 mm BP	82.72 69.50	5			₩-
Density			l t	66.24	5	m¹ to		1
g/ml 20°0 at 25	0.975 0.971	2	te (a, e)	65, 89	5	0'		
dt 25 4 30	0.967	4	ΔHv/T <sub>e</sub>	19.11	5	Surface tension		<b>†</b>
a b	0.991 -0.0 <sub>3</sub> 80	4	e   280 °C	99.52 0.1191	5	dynes/cm. 20°C	39.87 38.58	5
Ref. Index		+-	d' 25 to e' 140 °C	97.81 0.1070	5	40	37.32	5
n <sub>D</sub> 20°0	1.552	2	d <sub>c</sub> g/ml	0.310	5	Parachor [P]		
25 30	1.550 1.547	2	v <sub>c</sub> ml/g t <sub>c</sub> °C	3.23	5	20°C 30		
"C"	0.7402	4		480.	5	40	412.2	5
MR (Obs.		2	P <sub>c</sub> mm	21855.	5	Exp. L. l. %/wt.	412.7	+-
MR (Calc. (nD-d/2)	51.815 1.064	5 2	25°C	1.0000	5	u.		
Dielectric		╁	30 mm BP	1.0000 0.9 <b>3</b> 51	5	Dispersion		_
A 140 to		5	l t	0.9133	5	Flash Point *C Fire Point		
B (330 °C	1861.3	5	¹c	0, 240	5	M. Spec.		+-
A* 140 to	191.	5	ΔHc kcal/m ΔHf			Ultra V. X-Ray Dif.		
B*[290 °C		5	ΔFf	ļ	<b> </b>	Infrared		1
K			Viscosity centistokes			Solubility in +		
t <sub>k</sub> [ _ tc		ĺ	η °C			Acetone Carbon tet.		
k   °C   A'   25 to		5				Benzene		
B' 140 °C	2103.2	5	ļ		↓	Ether n-Heptane		1
C'	211.9	5	B <sup>V</sup> to C			Ethanol Water		
A'* 25 to B'*140 °C		5	$\frac{A}{(B^{V})} - \frac{C}{to}$	-		Water in		L
Ac 330 to	7,54749	5	(A <sup>V</sup> )  °C					
Bc tc C		5	c <sub>p</sub> liq. *K		<b>†</b>	1	1	
Cryos. A		+-	41					
consts. B		1	P				l	
t <sub>e</sub> °C	282, 3	5	c <sub>v</sub> vap.					$\perp$
$T_{\mathbf{R}} = 0$ .	80 T <sub>c</sub>					grams/100 gra		nt
REFEREN	CES: 1-Dow			Calc, from de	et. da	ta 5-Calc, by for	mula	
SOURCE:		AP						
PURIFICA		AP						
LITERATI	JRE REFERE	NCE	S:					

No. 22 5, 7-Dimethyl-1, 2, 3, 4-Tetrahydronaphthalene STRUCTURAL FORMULA NAME Molecular Molecular Mole Ref.  $C_{12}H_{16}$ H<sub>3</sub>C Weight 160, 248 % Pur Formula Ref Ref Ref. F. P. °C -6. 2 dt/dP to F.P. 100% °C/mm <u>•</u>K g 25°C 337.5 B. P. \*C h 0.0604 BP 5 760 mm 253,1 2 5 f 0.0370 to 100 5 176.2 g' •K 30 mm 30 0.8594 5 142.0 5 10 115.7 5 h' ∆Hm cal/g 1 71.7 5 to m ΔHv cal/g Pressure n •K 25°C 95.41 mm 25°C 0.0342 o 30 mm 82.90 5 te 1414.0 5 BP 69.25 5 m ١ to Density g/ml 20°C te (d, e) 5 66.33 •ĸ n' 0.9583 2 65.69 ٥'  $d_4^t$ 25 0.9537 ΔHv/Te 19.09 5 30 0.9491 4 Surface tension d 140 to 5 100.35 0.9767 dynes/cm. 20°C 37.21 \_28<u>5</u> °C 0.1229 98.08 ь -0.0392 4 30 35.80 34.43 5 25 40 Ref. Index e' 140 °C 0.1069 5 20°C 1,5405 [P]  $\mathbf{n}_{\mathbf{D}}$ Parachor d g/ml vc ml/g tc °C 0.291 5 25 1.5384 20°C 3.44 5 30 1.5350 4 30 474. 5 40 "C" 0,7384 4  $P_c$  mm 20281. 5 Sugd 412.7 5 52, 51 MR (Obs.) 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 51.815 25°C 1,0000 (nD-d/2) 1.0613 2 30 mm 1.0000 Dispersion Dielectric BP 0.9348 5 Flash Point °C 0.9129 5 A 140 to 7.08594 t<sub>e</sub> Fire Point 0,240 5 1867.5 B 1325°C M Spec. С 191. 5 AHc kcal/m Ultra V ΔHf A\* 140 to 1.5831 5 X-Ray Dif. ΔFf B+ 295 °C 1769.4 Infrared Viscosity Viscos.., centistokes °C Solubility in Acetone to ·c Carbon tet. Benzene A1 25 to 7, 4393 Ether 2110.2 B' ∟140 °C n-Heptane  $\overline{\overset{\boldsymbol{B^{v}}}{_{\boldsymbol{A^{v}}}}}$ C' 212.0 5 to Ethanol °C 1.9398 Water A1+ 25 to 5 B'# 140 °C (BV) Water in 2007.2 to (AV) Ac | 325 to 7.55004 5 °C Bc tc\_C 2347.9 cp liq. ۰ĸ Сc 250. Cryos. A\* c<sub>p</sub> vap. ۰ĸ consts. B° te °C c, vap. 283.5 5  $T_R = 0.80 T_c$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

TABLE VI. TETRAHYDRONAPHTHALENES

Mole	Ref.	Mol	ecula	NF 0	Molecular	$\dashv$	H <sub>3</sub> C H <sub>2</sub>	H2 H2	
% Pur.		For	mula		Weight 160.2	48	H <sub>3</sub> Č H <sub>2</sub>		
			Ref.			Ref.			Re
F. P. °C				dt/dP			f to		
F.P. 100%				°C/mm		١. ا	g  •K		
B. P. *C				25°C BP	352.2 0.0604	5	h I		
760 mm	254.		2	t <sub>e</sub>	0.0371	5	f¹ to		Τ
100 30	177. 143.		5	90 mm	0.8608	5	g'• <u>K</u>		
10	117.		5	ΔHm cal/g			h'		
1	72.		5	····	1	+	m to		Т
Pressure			ا ۽ ا	∆Hv cal/g 25°C	95.63	5	n  •K		
mm 25°C	0.03 1415.4	2'	5	30 mm	83, 06	5	•		
Density				BP	69.75 66.45	5	m' to		Г
Density g/ml 20°C	0.96	7	2	te te (d, e)	66.10	5	n'   <u>*</u> K		
at 25	0.96	3	2	ΔHv/T <sub>e</sub>	19.09	5			$\perp$
4 30	0.95		4	d 145 to	<del></del>	-	Surface tension		T
a	0.98		4		100.1 0.1195	5	dynes/cm. 20°C	38.58	1 :
b	-0.03	00	4	d'   25 to	98.3	5	30 40	37.32 36.09	
Ref. Index	1.54	,,	2	e'   145 °C	0.1069	5	Parachor [P]	35.57	+
<sup>n</sup> D 25	1.54		2	d <sub>c</sub> g/ml	0.306	5	20°C		
30	1.54	2	4	vc ml/g tc °C	3.26 482.	5 5	30		ļ
"C"	0.73	996	4	P <sub>c</sub> mm	21618.	5	40 Sugd.	412.7	١,
MR (Obs.)	52.5		2	PV/RT	2.0.0.	+	Exp. L.1.%/wt.		+
MR (Calc.) (nD-d/2)	51.81 1.06		5 2	25 <b>°C</b>	1.0000	5	u.		
	1.00			30 mm	1.0000	5	Dispersion		
Dielectric	ļ <u></u>		إجا	BP t	0.9342 0.9122	5	Flash Point C		
A 145 to B 330 °C	7.08 1872.6	8889	5	te tc	0.240	5	Fire Point		4
c	191.		5	AHc kcal/m	1		M. Spec. Ultra V.		
A* 145 to	1.58	63	5	ΔHf ΔFf			X-Ray Dif.		
B*[ 295 °C	1774.7		5		1	+	Infrared		1_
C C				Viscosity centistokes	1		Solubility in +		
tkto				η ·c	1		Acetone Carbon tet.		
<u>                                      </u>				1			Benzene		
A'   25 to	7.44	24	5		I		Ether		
B'   145 °C	2116.0	2	5	B <sup>v</sup> to			n-Heptane Ethanol		
A'* 25 to	<del> </del>	1237	5	B <sup>V</sup> to A <sup>V</sup> C			Water		1
B'* 145 °C	2012.8		5	(B <sup>V</sup> )  to	-		Water in		$\perp$
Ac  330 to	7.54	042	5	(A <sup>V</sup> )  °C					
Bc tc C	2346.5		5	cp liq. °K					
	250.		5						
Cryos, A° consts. B°				c <sub>p</sub> vap. *K					
t <sub>e</sub> °C	284.5		5	c <sub>v</sub> vap.	1	ــــــــــــــــــــــــــــــــــــــ	<u> </u>		$\perp$
$T_{R} = 0.80$							grams/100 gran		nt
REFERENC	ES: 1-I	Dow			Calc. from de	et. da	ta 5-Calc, by for	nula	
SOURCE:			AP						
PURIFICAT	ION:		AP	·I			· · · · · · · · · · · · · · · · · · ·		
LITERATU	RE REF	ERE	NCES	5:					

No. 24 6, 7-Dimethyl-1, 2, 3, 4-Tetrahydronaphthalene STRUCTURAL FORMULA NAME H<sub>3</sub>C Molecular C12H16 Molecular Weight 160,248 Mole Ref. Hg % Pur. Formula Ref. Ref. Ref. F.P. °C F.P. 100% 10. 2 dt/dP f to °C/mm <u>°K</u> g 25°C 320.55 B. P. \*C BP 0.0603 5 760 mm 252. 2 ſ١ 5 0.0369 to 100 175. 5 g' °K 30 5 30 mm 141. 0.8576 5 10 115. 5 h' AHm cal/g 5 71 to AHv cal/g Pressure ٠ĸ 25°C 95.14 0.0362 mm 25°C 30 mm 82.72 69.70 5 te 1416.9 5 BP 5 Density g/ml 20°C m to te (d, e) 66.44 5 •ĸ 0.954 n' 2 66.12 5 ۰, 0.950 2  $d_4^t$ 25 ΔHv/Te 5 19.16 30 0.946 4 Surface tension d 140 to •C 99.27 5 0.970 -0.0380 4 dynes/cm. 20°C 36.54 1 280 . 0.1173 5 Ъ 35.33 34.15 5 30 ă٠ to 97.81 40 5 e¹ Ref. Index 140 0.1070 20°C 1.538 2 [P]  $\mathbf{n}_{\mathbf{D}}$ Parachor g/ml d v 0.302 5 25 1.536 2 20°C ml/g 3.31 30 1.534 4 t<sub>c</sub> 30 •c 477. 5 40 "C" 0.7384 4 P<sub>c</sub> mm 5 21156. Sugd. 412.7 5 MR (Obs.) 52.5 2 PV/RT Exp. L. 1. %/wt. MR (Calc.) 51.815 1.0000 5 25°C (nD-d/2)1.061 2 30 mm 1.0000 Dispersion Dielectric BP 0.9379 Flash Point °C 0.9165 A 140 to t<sub>e</sub> 7.08239 Fire Point 0.240 L325 °C 1861.3 M Spec. C 191. AHc kcal/m Ultra V ΔHf 1.57467 A\* | 140 to X-Ray Dif. ΔFf B+ 290 °C 1761.6 Infrared Viscosity Viscos.., centistokes \*C Solubility in c Acetone to Carbon tet. \*C Benzene A' | 25 to Ether 7.43552 B' ∟140 °C 2103.2 n-Heptane вv C' 212. 5 Ethanol to Ãv i •c Water 1.93669 A1# 25 to Water in (BV) B'# 140 °C 2000.3 to Ac | 325 to 7.54194 5 (AV) °C Bc tc\_C 2338.4 cp liq. ۰ĸ Cc 250. Cryos. A\* •ĸ c<sub>p</sub> vap. consts. B° t° .C c, vap. 282.49 5  $T_R = 0.80 T_C$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 4-Calc. from det. data 5-Calc. by formula 3-Lit. SOURCE: API **PURIFICATION:** API LITERATURE REFERENCES:

NAME	cis-Deca	hydro	ona phtha lene		-	STRUCTURAL FORMULA
Mole % Pur.	Ref. Mo	lecul mula		Molecular Weight 138,16	4	H <sub>2</sub> H <sub>2</sub> H <sub>2</sub> H <sub>2</sub> H <sub>2</sub> H <sub>2</sub> H <sub>2</sub> H <sub>2</sub>
		Ref		ľ	Ref.	Ref
F. P. °C F. P. 1009	-43.01	2	dt/dP °C/mm			f to g *K
B. P. *C 760 mm 100	195, 65 124, 6	2 5	25°C BP te	19.56 0.05613 0.03724	5 5	h   to g'   co
30 10 1	93.26 69.4 29.5	5 5 5	30 mm  AHm cal/g	0.7841	5	h'
Pressure mm 25°C t <sub>e</sub> Density	0.737 1287.0	5 5	AHv cal/g 25°C 30 mm BP	88.72 82.06 70.41	5 5 5	m   to   m   to
g/ml 20°0 dt 25 d4 30	0.8965 0.8925 0.8885	2 2 4	t <sub>e</sub> (d, e) ΔHv/T <sub>e</sub> d 100 to	67.82 67.70 19.02	5 5	n'eK
b Ref. Inde	0.9125 -0.0 <sub>3</sub> 80	4 4	e 220 °C to	0.1138 91.16	5	dynes/cm. 20°C 32.51 5 30 31.36 5 40 30.25 5
<sup>n</sup> D 20°0 25 30		2 2 4	d g/ml vc ml/g tc °C	0.0976 0.240 4.16 404.	5 5 5	Parachor [P] 20°C 30
"C"	0.7077	4	P <sub>c</sub> mm	18730.	5	40 Sugd. 368. 0 5
MR (Obs. MR (Calc. (nD-d/2)	1, 0328	2 5 2	PV/RT 25°C 30 mm BP	1.0000 1.0000 0.9548	5 5 5	Exp. L.1.%/wt. u. Dispersion
A 100 to B 235 C	6, 92860	5 5 5	te tc ΔHc kcal/m	0.9389 0.255	5	Flash Point *C Fire Point  M. Spec.
A* 100 to B* 230 °C K		5	ΔHf ΔFf Viscosity			Ultra V. X-Ray Dif. Infrared Solubility in
t <sub>k</sub> - to	:		centistokes 7°C			Acetone Carbon tet. Benzene
B' 100 °C	2 1823. 221.	5 5 5	B <sup>v</sup> to			Ether n-Heptane Ethanol Water
B'* 100 °C	7, 16561	5	(B <sup>V</sup> )  to	-		Water in
Bc tc Cc		5	c <sub>p</sub> liq. °K			
Cryos. A consts. B	·	_	c <sub>p</sub> vap. *K c <sub>v</sub> vap.			
t <sub>e</sub> °C	219.47	5	L v f	<u>l</u>	L	* grame /100 grame color=*
	<del>-</del>	2	PI 3-Lit. 4-	Calc from de	.+ .4.	grams/100 grams solvent ata 5-Calc. by formula
	C23: 1-D0W	AF		Care, Irom de	4	am J-Osic. by formula
SOURCE:	TION	AF				
LITERATI	TION: JRE REFERE					
1						

STRUCTURAL FORMULA trans-Decahydronaphthalene NAME Molecular C<sub>10</sub>H<sub>18</sub> H<sub>2</sub> Ref. Molecular Mole % Pur Weight 138, 164 H<sub>2</sub> Ηջ Ref. Ref. -30.4 2 dt/dP f to F. P. 100% °C/mm g <u>°K</u> ١ 25°C 13.53 B. P. \*C h 0.0554 ВP 5 760 mm 187.25 2 0.03732 5 ſ١ to 100 117. ŧ, g' •ĸ 5 30 86. 30 mm 0.7717 5 10 63. h' ∆Hm cal/g 24. 5 to m ∆Hv cal/g Pressure °K 25°C n 86.19 5 mm 25°C 1.0971 5 o 30 mm 80.30 5 1263.2 5 t<sub>e</sub> BP 68,80 5 to Density g/ml 20°C 5 te te (d, e) 66.33 n' ٠ĸ 0.8699 5 66.22 0' 25 0.8659 2  $d_4^t$ AHv/T 5 18.97 30 0.8619 4 Surface tension đ -85 to 90.14 5 0,8859 28.82 dynes/cm. 20°C 210 <u>•c</u> 0.1140 5 Ъ -0.0380 4 30 27.77 5 to 88.59 1 2.5 40 26.75 5 Ref. Index ·c e' 0.9597 85 5 1.4695 20°C [P] 2 n<sub>D</sub> Parachor d<sub>c</sub> g/ml 0.254 5 25 1.4672 2 20°C vc ml/g tc °C 5 3.93 30 1.4650 4 30 391. 5 40 "C" 0.7130 5 19616. 5 P<sub>c</sub> mm Sugd. 368.0 5 MR (Obs.) 44.30 2 PV/RT Exp. L. 1. %/wt. MR (Calc.) (nD-d/2) 43.98 25°C 1.0000 5 u. 2 1.0345 30 mm 1.0000 Dispersion 0.9553 Dielectric BP 5 Flash Point °C t<sub>e</sub> 0.9398 5 85 to 6.90464 Fire Point 5 tc 0,257 1570.3 L 225 °C 5 M Spec. С 5 AHc kcal/m 203. Ultra V. ΔHf 1.35573 A\* | 85 to 5 X-Ray Dif. ΔFf B+ 220 °C 1472.3 Infrared ĸ Viscosity Solubility in c centistokes Acetoné Carbon tet. •c Benzene 25 to 7. 24657 Ether B١ 85 °C 1774.4 n-Heptane B<sup>v</sup> 221. 5 to Ethanol ÃV i ·c Water A'\* 25 to 1.71053 Water in B'\* 85 °C 1674.2 (BV) 5 to Ac | 225 to 7.31068 5 (AV) °C Bc tc C 1937.4 cp liq. ۰ĸ Cc 250. Cryos. A\* c<sub>p</sub> vap. •ĸ consts. B. c, vap. t<sub>e</sub> °C 209.89 5  $T_{\mathbf{R}} = 0.75 \, T_{\mathbf{c}}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

								No. 3	
NAME	l -Metl	hyl-(t	rans	-Decahydronap	hthalene)		STRUCTURAL	FORMULA	١.
							Hz CH	13 1H2	
N-1-	2.4		•		4-11		Hz	H <sub>2</sub>	
Mole % Pur.	Ref.		ecul.		Molecular Veight 152.2°	70	H <sub>2</sub> H <sub>1</sub>		
			Ref.		T T	Ref.			Ref.
F. P. *C				dt/dP			f to		
F.P. 100%				°C/mm			g  •K		
B. P. *C 760 mm	225			25°C BP	133.00	5	h		
100	235. 160.		2	t <sub>e</sub>	0.0369	5	f' to		
30 10	126.6 101.		4 5	30 mm	0.8353	5	g' <u>*K</u>		
i	58.		5	ΔHm cal/g		_	h'		
Pressure				ΔHv cal/g 25°C	94.02	5	m to		
mm 25°C	0.09 1384.2	28	5	30 mm	83.25	5	•		
Density	1304.2		,	BP	70.76 67.60	5	m¹ to		
g/m1 20°C				t <sub>e</sub> (d, e)	67.86	5	n'   L _ <u>*K</u>		
dt 25				AHv/Te	19.17	5			
1 30				d 125 to	97.83	5	Surface tension dynes/cm. 20°C	ĺ	
ь				-a - 265 *C	0.1152 96.67	5	<b>3</b> 0	ļ	
Ref. Index	,			e'   125 °C	0.1060	5	40		
<sup>n</sup> D 20°C	1.47		2	d <sub>c</sub> g/ml			Parachor [P] 20°C		
30	1.46	76	4	vc ml/g tc °C			30	İ	
"C"				P <sub>c</sub> mm			40 Sugd.	407.0	5
MR (Obs.) MR (Calc.)	48.59		5	PV/RT		<del>                                     </del>	Exp. L.1.%/wt.		
(nD-d/2)	40.5	,0	ا	25°C 30 mm	1.0000	5	u.		
Dielectric				BP	0.9461	5	Dispersion Flash Point *C		
A 127 to	7.03	3372	5	ţe.	0.9266	5	Fire Point		
B 1_300 °C_	1781.6 194.		5	t <sub>c</sub> ΔHc kcal/m	<b>-</b>	<del> </del>	M. Spec.		
A* 127 to	1.50	246	5	ΔHf			Ultra V. X-Ray Dif.		
B*  275 °C	1679.9		5	ΔFf		-	Infrared		
K				Viscosity centistokes			Solubility in +		
t <sub>k</sub> to				η •c			Acetone Carbon tet.		
t <sub>x</sub> °C A'   20 to	7 26	3379.	5				Benzene Ether		
B' 127 °C	2013.2	,,,,	5	ļ <u>, , , , , , , , , , , , , , , , , , ,</u>		+	n-Heptane		ŀ
_ c'	214.		5	B <sup>V</sup> to A <sup>V</sup> C			Ethanol Water		l
A'* 20 to B'* 127 °C	1.86	5994	5	$\frac{\Lambda}{(\mathbf{B}^{v}) } - \frac{3}{to}$			Water in		
Acl to	1		Ť	(A <sup>V</sup> )  °C					
Bc tc C	[			c <sub>p</sub> liq. *K	<del>                                     </del>	+	1		ŀ
Cc			-	41					
Cryos. A° consts. B°				c <sub>p</sub> vap. *K					
t <sub>e</sub> °C	263.7		5	c <sub>v</sub> vap.			l. <b>.</b> l		<u></u>
				<b>D.</b> 4			grams/100 gran		t
REFERENC	E9: 1-I	Jow			Calc. from d	et. da	ata 5-Calc. by for	mula	
SOURCE:	ION:			PI PI					
LITERATU		EPF							
	ALF	JA.		<b>.</b>					

No. 4 STRUCTURAL FORMULA NAME 9-Methyl-(cis-Decahydronaphthalene) HCH3 HH2 H<sub>2</sub> Molecular C11H20 Molecular Ref. Mole Weight 152, 270 Hz Hg % Pur. Ref. Ref Ref. F.P. C F.P. 100% dt/dP f to °C/mm g •K 25°C 49.10 5 B, P. °C h 0.0576 ВP 5 760 mm 215. 2 0.0370 5 ſ to 100 142. 5 g¹ °K 30 110. 5 30 mm 0.8093 5 10 85. h١ ∆Hm cal/g 44. 5 to ΔHv cal/g m Pressure •K n 25°C 87.02 mm 25°C 0.27159 o 30 mm 78.79 5 1336.1 5 te ВP 67.25 5 to Density m' 1 5 te (d, e) 64.52 n' ٠ĸ g/ml 20°C 0.8910 64,37 5 ۰' 0.8870 2 25 d4 AHV/T 19.10 5 30 0.8830 4 Surface tension 110 to 90.80 5 0,9070 dynes/cm. 20°C 32.17 •c 0.1095 240 5 Ъ -0.0380 4 30 31.03 5 to 25 89.45 5 1 40 29.92 5 e' Ref. Index •c 110 0.0972 1.4804 20°C 2 Parachor [P]  $\mathbf{D}^{\mathbf{Z}}$ d<sub>c</sub> g/ml 0.273 5 25 1.4782 20°C 5 ml/g 3.66 t<sub>c</sub> 30 1.4755 4 30 •c 422. 5 40 "C" 0,7108 4 P<sub>c</sub> mm 19033. 5 407.0 5 Sugd. 49.43 MR (Obs.) PV/RT Exp. L.1.%/wt. MR (Calc.) (nD-d/2) 48.598 25°C 1.0000 5 1.0349 4 30 mm 1.0000 5 Dispersion Dielectric BP 0.9511 5 Flash Point °C t<sub>e</sub> 0.9335 6. 98032 A 110 to Fire Point 0.245 1693.1 tc B 290 °C M Spec. C 5 198. AHc kcal/m Ultra V ΔHf A\* | 110 to 1.45645 5 X-Ray Dif. ΔFſ 1592.0 B+ \_250 °C Infrared Viscosity Solubility in centistokes Acetone t<sub>x</sub> | to Carbon tet. •c Benzene A1 25 to 7,32702 Ether B١ □170 .C 1913.2 n-Heptane B<sup>V</sup> A<sup>V</sup> C 217. 5 Ethanol to 5 •c Water A'\* A\*\* 25 to B\*\* 110 °C 1.82096 Water in 1811.5 (BV) 5 to Ac | 290 to 7.45310 5  $(A^{V})_{1}$ °C Bc tc C 2148.5 Сp liq. ۰ĸ Cc 255. Cryos. A\* cp vap. ٠ĸ consts. B° c, vap. te °C 241.26 5  $T_R = 0.80 T_c$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

NAME	9-Meth	yl-(trans	-Decahydrona		STRUCTURAL FORMULA			
Mole % Pur.	Ref.	Molecula Formula		Molecular Weight 152,27	,0	H <sub>2</sub> H <sub>2</sub> H <sub>2</sub> H <sub>2</sub> H <sub>2</sub>		
		Ref	•		Ref.	· · · · · · · · · · · · · · · · · · ·		
F, P, *C			dt/dP			f to		
F.P. 100	6		*C/mm			g  •K		
B. P. *C			25°C	30.28	5	h		
760 mm	205.	2	BP	0.0569 0.0371	5	<del></del>		
100	133.	5	t <sub>e</sub>		l	f' to to		
30 10	101. 77.	5	30 mm	0.7964	5	h'		
1	36.	5	ΔHm cal/g	ļ	1	<u></u>		
Pressure			ΔHv cal/g	02.42	-	m to		
mm 25°C			25°C 30 mm	83.62 76.54	5			
t <sub>e</sub>	1312.7	5	BP	65.52	5	m' to		
Density		.	te (d. a)	62.96	5	n' 'K		
g/ml 20° t 25	0.862 0.858		re (a, e)	62.86		0'		
dt 25 4 30	0.85		ΔHv/T <sub>e</sub>	19.05	5	Surface tension		
	0.878	30 4	d 100 to	87.27	5	dynes/cm. 20°C 28.18 5		
ь	-0.03	30 4	d 230 °C	0.1061 85.94	5	<b>3</b> 0   27.15   5		
Ref. Inde			e'   100 °C		5	40 26.14 5		
<sup>n</sup> D 20°	1.46 1.46		d <sub>c</sub> g/ml	0.256	5	Parachor [P]		
30	1.45		V mi/g	3.90	5	30		
"C"	0.71			403.	5	40		
MR (Obs.	_+		P <sub>c</sub> mm	17732.	5	Sugd. 407.0 5		
MR (Calc	.) 48.598	3   5	PV/RT 25°C	1.0000	5	Exp. L.1.%/wt.		
(nD-d/2)	1.03	21 4	30 mm	1.0000	5	u. Dispersion		
Dielectric	:		BP	0.9542	5	Flash Point *C		
A 100 to			ţ.	0.9375	5	Fire Point		
B _270°C	200.	5 5	tc AHc kcal/m	0.230	+-	M. Spec.		
A* 100 to	<del></del>		ΔHf			Ultra V.		
B* 240 °C		000   5	ΔFf		ļ	X-Ray Dif. Infrared		
K	_		Viscosity			Solubility in +		
t <sub>k</sub>   - t	<del>-</del>	1 1	centistokes り *C	1		Acetone		
K .			,			Carbon tet. Benzene		
A'   25 to		578 5				Ether		
B' 100°		5	-v	<del>                                     </del>	<del>                                     </del>	n-Heptane		
	219.	5	B <sup>V</sup> to A <sup>V</sup> C		]	Ethanol Water		
A'* 25 to B'* 100 °C		377   5   5	(BV) - to	-		Water in		
Acl 270 to		-+	(A <sup>V</sup> )  °C	1				
Bc tc	C 2053.4	5	c <sub>p</sub> liq. °K		$\top$	1		
Cc	250.	5						
Cryos, A consts, B	•		c <sub>p</sub> vap. *K					
t <sub>a</sub> °C	230.08	5	c <sub>v</sub> vap.	1	1_	<u> </u>		
TR = 0.						grams/100 grams solvent		
REFEREN	ICES: 1-D			Calc, from d	et / da	ata 5-Calc. by formula		
SOURCE:		AF						
PURIFICA		AF						
LITERAT	URE REFI	ERENCES	<b>3:</b>					
<u>L</u>								

No. 6 STRUCTURAL FORMULA 9-Ethyl-(cis-Decahydronaphthalene) NAME HC2H5HH2 H2 Molecular Mole Ref. Molecular  $C_{12}H_{22}$ H<sub>2</sub> Formula Weight 166.296 H<sub>2</sub> Ref. Ref. dt/dP f to F.P. 100% \*C/mm 25\*C <u>°K</u> g 118.21 B. P. \*C h 0.0589 BP 5 760 mm 233. t<sub>e</sub> 0.0368 5 ſ١ to 100 158. 5 5 5 \_•K g¹ 125. 30 30 mm 0.8337 5 99. 10 h' ∆Hm cal/g 57. 5 to m ∆Hv cal/g Pressure •K n 25°C 85.14 5 mm 25°C 0.10558 o 30 mm 75.69 5 1387.4 5 t<sub>e</sub> BP 64.64 5 m' to Density g/ml 20°C 61.85 61.70 5 te (d, e) n' •ĸ 0.8860 5 ٥' 0.8830 2 25 AHV/T ď4 5 19.23 30 0.8800 4 Surface tension ď 125 to 88.43 5 0.8980 31.88 dynes/cm. 20°C 260 °C 0.1021 5 Ъ 30 31.03 5 85.51 40 30.19 5 0.0947 Ref. Index e١ •c 125 5 20°C 1.480 [P] 2  $\mathbf{n}_{\mathbf{D}}$ Parachor d g/ml vc ml/g tc °C 0.294 5 25 1.478 2 20°C 5 30 3.40 4 1.476 30 442. 5 40 "C" 0.7147 4 18781. 5 P<sub>c</sub> mm Sugd. 446.0 5 MR (Obs.) 53.319 4 PV/RT Exp. L.1.%/wt. MR (Calc.) (nD-d/2) 53.216 5 25°C 1.0000 5 u. 1.037 4 30 mm 1.0000 Dispersion 0.9509 Dielectric RP 5 Flash Point °C te 0.9321 5 7.03034 125 to Fire Point 0.245 5 tç 1776.0 1300 °C M Spec. Ultra V. C 5 AHc kcal/m 195. ΔHf A\* | 125 to 1.52976 5 X-Ray Dif. ΔFf B+ 270 °C 1671.5 Infrared ĸ Viscosity Solubility in centistokes Acetone Carbon tet. •c Benzene 25 to 7.38019 Ether 2006.8 125 °C n-Heptane ВŸ C' 215. 5 to Ethanol  $\hat{\mathbf{A}^{\mathbf{V}}}$ 1.90514 ·c Water A1# 25 to 5 Water in B'# 125 °C 1904.5 (BV) 5 to Ac | 300 to 7.49304 5 (AV) °C Bc tc\_C 2227.8 cp liq. ۰ĸ 250. Cryos. A\* c<sub>p</sub> vap. •ĸ consts. B° c, vap. t. .C 5 261.77  $T_R = 0.80 T_c$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API **PURIFICATION:** API LITERATURE REFERENCES:

NAME	9 - Ethy	l-(tr	ans-	Decahydronaph	thalene)		STRUCTURAL F HC2H5 H2	No. 7 FORMULA
Mole % Pur.	Ref.		leculi mula		Molecular Weight 166.2	96	H <sub>2</sub> H <sub>2</sub> H <sub>H<sub>2</sub></sub>	Hg
			Ref			Ref.		Ref.
F.P. °C F.P. 100%				dt/dP *C/mm			f to g - •K	
B.P. *C 760 mm 100 30	225. 150.94 118.13	3	2 5 5	25°C BP t <sub>e</sub> 30 mm	80, 25 0, 0583 0, 0367 0, 8224	5 5 5	h   to g'  *K	
10	93.06		5	ΔHm cal/g		П	h'	
Pressure mm 25°C t <sub>e</sub>	0.15 1375.1		5	ΔHv cal/g 25°C 30 mm BP	82.83 74.17 63.65	5 5 5	m to to o o o o o o o o o o o o o o o o	
Density g/ml 20°C dt 25 d4 30	0.86 0.85 0.85	70 30	2 2 4	t <sub>e</sub> (d, e)  AHv/T <sub>e</sub> d   120 to	60.96 60.89 19.27	5 5 5	n' K o' Surface tension	
a b	-0.0		4 4	e 255 °C d 25 to	0.0985 85.15	5	dynes/cm. 20°C 30 40	28.43 5 27.39 5 26.38 5
Ref. Index n <sub>D</sub> 20°C 25 30	1.46 1.46 1.46	4	2 2 4	d g/ml vc ml/g t °C	0.0929 0.256 3.91	5 5 5 5	Parachor [P] 20°C 30	26.38 5
"C"	0.71	50	4	t <sub>c</sub> *C	420. 16475.	5	40 Sugd.	446.0 5
MR (Obs.) MR (Calc.) (nD-d/2)	53.49 53.21 1.03	6	4 5 4	PV/RT 25°C 30 mm	1.0000	5 5	Exp. L.1.%/wt. u. Dispersion	3
Dielectric  A 120 to B 280 °C	7.00	670	5	BP t t	0.9568 0.9392 0.248	5 5 5	Flash Point *C Fire Point	
C A* 120 to B* 265 °C K c t k	196. 1.50 1630.9	0252	5 5 5	ΔHc kcal/m ΔHf ΔFf  Viscosity centistokes η °C			M. Spec. Ultra V. X-Ray Dif. Infrared Solubility in Acetone Carbon tet,	
A'   25 to B'   120 °C C'	7, 35 1962, 8 215, 8	5506	5 5 5	B <sup>V</sup> to A <sup>V</sup> C		-	Benzene Ether n-Heptane Ethanol	
A'* 25 to B'*120 °C	1.88 1860.8	3331	5	(B <sup>V</sup> )  to	-		Water Water in	
Acl 280 to Bc t <sub>c</sub> *C Cc	7.50 2216.5 255.	0050	5 5 5	(A <sup>V</sup> )  °C c <sub>p</sub> liq. °K		<del> </del>	-	
Cryos. A° consts. B°				c <sub>p</sub> vap. *K				
t <sub>e</sub> °C T <sub>R</sub> = 0.80	253, 03	3	5	c <sub>v</sub> vap.		_	grams/100 gran	ns solvent
		Dow	2-A	PI 3-Lit. 4-	Calc. from de	et. da	ata 5-Calc, by form	
SOURCE:			AF					
PURIFICAT	ION:		A.F					
LITERATU		ERE						

							No. 8	7
NAME	1,10-Dime	hyl-	(cis-Decahydro	naphthalene)		STRUCTURAL FO		
<u> </u>						~ ~ ~	H <sub>2</sub>	
Mole	Ref. Mo	lecul		Molecular		H₂	Hg	
% Pur.	Fo Fo	rmul		Weight 166.29	96	H <sub>2</sub> H <sub>2</sub>		
		Ref.			Ref.		Re	eſ.
F. P. *C			dt/dP			f to		
F.P. 100%		$\sqcup$	*C/mm 25*C	62, 52	5	8K_		
B. P. °C 760 mm	220.	2	BP	0.05796	4	h		_
100 30	146.42	5	t <sub>e</sub>	0.0373	5	f' to g' '*K		
10	113.86 88.99	5	30 mm	0,8160	1	h'		
<u></u>	47.36	5	ΔHv cal/g			m to		
Pressure mm 25°C	0,20927	5	25°C	81.22	5	n   *K		
t <sub>e</sub>	1335.0	5	30 mm BP	73,13 62,46	5	L		_
Density g/ml 20°C	0,8896	2	te (d.e)	59.22	5	m' to		
at 25	0.8856	2	te (d, e) ΔHv/Te	58, 33 18, 95	5	0'	1	
	0,8816	4	d   115 to	85.91	5	Surface tension		
b	0.9056 -0.0 <sub>3</sub> 80	4 4		0.1122	5	dynes/cm. 20°C		5 5
Ref. Index			d' 25 to	83.49 0.0909	5	40		5
n <sub>D</sub> 20°C	1.4812 1.4790	2 2	d <sub>c</sub> g/ml	0.260	5	Parachor [P] 20°C		
30	1.4768	4		3.84 416.	5	30		
"C"	0,7134	4	tc *C P <sub>c</sub> mm	16821.	5	40 Sugd.	446. U	5
MR (Obs.) MR (Calc.)	53.217 53.216	4 5	PV/RT		<u> </u>	Exp. L.1.%/wt.		_
(nD-d/2)	1.0364	4	25°C 30 mm	1.0000	5	u. Dispersion		
Dielectric			BP	0.9525	5	Flash Point °C		
A 115 to	6.99208 1714.4	5	te t <sub>c</sub>	0.9235 0.250	5	Fire Point		
B L 280 °C	197.	5	ΔHc kcal/m		<u> </u>	M Spec.		
A*   115 to	1.5180	5	ΔHf ΔFf			Ultra V. X-Ray Dif.		
B* L255 °C	1617.3	5	Viscosity		<del>                                     </del>	Infrared		
t   - to			centistokes			Solubility in + Acetone		
tk to			7 ℃			Carbon tet. Benzene		
A'   25 to	7.33952	5				Ether		
B' _115 °C	1937.2 216.6	5	B <sup>v</sup>   to		$\vdash$	n-Heptane Ethanol		
A'# 25 to	1.8697	5	_AV_ C			Water	ļ	
B'* 115 °C	1835, 5	5	(B <sup>V</sup> ) to			Water in		
Ac 280 to Bc t <sub>c</sub> °C	7.45224 2148:8	5	(A <sup>V</sup> )  •C		<u> </u>			
Cc - c-	250.	5	c <sub>p</sub> liq. •K	1				
Cryos. A° consts. B°			c <sub>p</sub> vap. *K					
te °C	246.4	5	c <sub>v</sub> vap.				i	
T <sub>R</sub> = 0.80	Tc			<b>L</b>		grams/100 gram	s solvent	_
REFERENC		2 - AI	PI 3-Lit. 4-0	alc. from de	t. da	ta 5-Calc, by form		
SOURCE:		AI						
PURIFICAT		AJ						
LITERATUR	RE REFERE	NC ES	<b>3</b> :					
<u> </u>								

NAME	1,10-Dimet	hyl-(t	rans-Decahydro	onaphthalene)		STRUCTURAL FORMUL  CH3 H2 HCH3  H2 H2	<b>A</b>
Mole % Pur.	Ref. M	olecul		Molecular Weight 166.2	96	H <sub>2</sub> H <sub>2</sub> H <sub>2</sub> H <sub>2</sub> H <sub>2</sub> H <sub>2</sub> H <sub>2</sub> H <sub>2</sub>	
-		Ref.			Ref.		Ref.
F. P. *C	1						
F.P. 100	<u>_                                    </u>	+	dt/dP *C/mm			f to to	
	<u> </u>	+	25°C	43, 75	5		1 1
B. P. °C 760 mm	213.	2	BP	0.0575	5	h	$\vdash$
100	140.	5	t <sub>e</sub>	0.0372	5	f' to	
30	108.	5	30 mm	0,8080	5	g' ' <u>*K</u>	1 1
10	83.	5	ΔHm cal/g			h¹	
	45.	+-	ΔHv cal/g	† · · · · · · · · · · · · · · · · · · ·		m   to	
Pressure mm 25°C	0.310	5	25°C	78.35	5	n   •K	
t <sub>e</sub>	1327.0	5	30 mm	71.56	5		
Density	<del></del>	+	BP	61.14 58.48	5	m' to	
g/ml 20°0	0.8633	2	t <sub>e</sub> (d, e)	58.41	5	n'  K_	
at 25	0.8593	2	AHv/Te	19.00	5	o'	
4 30	0.8553	4		<del></del>	<u> </u>	Surface tension	
	0.8799	4	d   110 to e   240 °C	82.28 0.9924	5	dynes/cm, 20°C 28.74	5
ь	-0.0380	4	d' 25 to	80.91	5	30 27.69	5
Ref. Inde			e'   110 °C	0.0868	5	40 26.66	5
<sup>n</sup> D 20°0	1.4659	2 2	d <sub>c</sub> g/ml	0.257	5	Parachor [P] 20°C	
30	1.4615	4	v <sub>c</sub> ml/g t <sub>c</sub> *C	3. 89	5	30	'
"C"	0.7131	4		406.	5	40	-
MR (Obs.		4	P <sub>c</sub> mm	16364.	5	Sugd. 446.0	5
MR (Calc		5	PV/RT		١.	Exp. L.1.%/wt.	
(nD-d/2)	1.04343	4	25°C 30 mm	1.0000	5	u. Dispersion	1
Dielectric		T	BP	0.9510	5		┼
A 110 to	6, 97377	5	te t	0.9314	5	Flash Point *C Fire Point	
B 1 310 °C		5		0.25	5	M, Spec.	+
_ <del>C</del>	199.	5	ΔHc kcal/m ΔHf			Ultra V.	
A* 110 to B* 250 °C		5	ΔFf			X-Ray Dif.	
K 230	- 1390.	'	Viscosity	†	1	Infrared	┼—
c	_	ļ	centistokes		ł	Solubility in T	
t <sub>k</sub> to			<b>"</b> γ • c		İ	Carbon tet.	
A'   25 to	1	5			1	Benzene	1
B' 110 °C		5		<u> </u>	1	Ether n-Heptane	1
c, '	218.	5	B <sup>V</sup> to			Ethanol	
A'+ 25 to	1.8219	5	LA:			Water	1
B'* 110 °	7 1793.	5	(B <sup>V</sup> )  to			Water in	↓
Acl 310 to	7, 49780		(A <sup>V</sup> )  °C				1
Bc_tc_'	2187.1 - 260.	5	c <sub>p</sub> liq. °K			1	1
Cryos. A		<del>  _</del>	41				1
consts. B			c <sub>p</sub> vap. *K			1	
t <sub>e</sub> °C	238.9	5	c <sub>v</sub> vap.			1	i
$T_R = 0.$	1		ш	1		grams/100 grams solver	nt.
	CES: 1-Dow	2 - A	PI 3-Lit. 4-	Calc. from de	et. da	ata 5-Calc. by formula	
SOURCE:		Al				· · · · · · · · · · · · · · · · · · ·	
PURIFICA	TION:	Al	PI				
	JRE REFER	ENCE	S:				

## TABLE VIII. AROMATIC PHENOLS

No. 1 Phenol STRUCTURAL FORMULA NAME OH Molecular C6H6O Mole Ref. Molecular Weight 94,108 % Pur. 99.96 1 Ref. Ref Ref. F.P. °C F.P. 100% 40.90 dt/dP f to °C/mm 25°C g <u>°K</u> 24.83 5 B. P. °C h ВP 0.04704 4 760 mm 181.75 0.03163 ſ١ te to 100 120.7 ī g' 92.78 •<u>к</u> 30 4 0.7065 30 mm 4 70.86 5 10 h' ∆Hm cal/g 33.6 5 to ΔHv cal/g Pressure n ۰ĸ 25°C 142.55 mm 25°C 0.5305 0 30 mm 133.44 5 te 1240. 5 BP 116.40 5 m' to Density 113.06 te te (d, e) n' <u>•K</u> g/ml41°C 1.05760 5 1 113.23 o' 46  $\mathbf{d_4^t}$ 1.05331 AHv/T 23.39 5 51 1.0490 5 Surface tension 93 to 147.70 5 1.0929 5 dynes/cm. 50°C 37.66 200 °C 20 to a -0. 0386 5 0.1722 ь 60 36.57 ď 145.91 70 35.51 Ref. Index e' i 93 °C 0.1344 5 41°C 1.54178 [P] n<sub>D</sub> Parachor dc g/ml 0.401 5 46 1.53937 1 50°C 222.0 vc ml/g t\_ C 2.494 5 51 1.53718 60 222.2 4 4 419. 3 t<sub>c</sub> 70 222.4 5 "C" 0.6706 4 P<sub>c</sub> mm 45980. 3 0 = 15Sugd 222.1 MR (Obs.) 27.994 PV/RT Exp. L.1.%/wt. MR (Calc.) 27,832 25°C 1.0000 u. (nD-d/2)1.01298 4 1.0000 30 mm Dispersion Dielectric 0.9550 5 BP Flash Point C A 93 to B | 240 °C te tc 0.9416 7,57893 1 Fire Point 0.25 1817.0 M. Spec. ċ 205. 5 ΔHc kcal/m 1 Ultra V. ΔHf A\* 93 to 1.87043 1 X-Ray Dif. ΔFf B\* 220 °C 1720.6 1 Infrared ĸ Viscosity Solubility in centistokes Acetone to 60 °C 2.5199 1.5968 1 Carbon tet. •c œ t<sub>x</sub>\_ 80 1 Benzene œ 100 1.0835 A' | 20 to 7,86819 5 Ether 120 0.8508 ı 2011.4 R١ 9<u>3 °C</u> n-Heptane B<sup>V</sup> | 50 A<sup>V</sup> | 90 C' 222. 5 1166.0 Ethanol to œ °C **4.9020**0 8.20 Water 20 to 2.1593 1 Water in 37.14 B'\* 93 °C 1909.4 (BV) 95 5 to 770.4 4 Ac 240 to 7.9398 (A<sup>V</sup>)|130 °C 3.97052 Bc tc C 2219.3 5 c<sub>p</sub> liq. ۰ĸ Сc 257.6 5 Cryos. A\* c<sub>p</sub> vap. ۰ĸ consts. B° r .C c vap. 200, 1 5  $T_{\mathbf{R}} = 0.75 \, T_{\mathbf{c}}$ grams/100 grams solvent 5-Calc. by formula REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data SOURCE: Dow Distillation **PURIFICATION:** LITERATURE REFERENCES: 3 ICT

No. 2 STRUCTURAL FORMULA NAME o-Cresol 2-Methylphenol Molecular C7H8O Molecular Mole Ref. 99.90 Weight 108.134 % Pur. 1 Formula Ref. Ref Ref. F.P. C F.P. 100% 30.94 1 dt/dP f to °C/mm °K g 5 31,190 25°C B. P. \*C h BP 0.04986 190.95 760 mm 1 0.03306 5 f to 100 126.54 1 g' °K 30 97.4 4 30 mm 0.7349 5 10 74.9 h' ∆Hm cal/g 31.37 4 5 36.8 1 to m AHv cal/g Pressure °K 25°C 124.41 0.4254 1267.7 mm 25°C 5 o 30 mm 5 114.49 5 t<sub>e</sub> BP 5 99.12 to m' 1 Density te te (d, e) 96.23 5 •ĸ g/ml 41°C 'n 1.02734 1 95.78 5 ۰, 1.02298  $d_4^t$ 46 1 AHV/Te 5 21.47 51 1.01860 4 Surface tension ī 130,50 5 1.0630 -0.0<sub>3</sub>87 97 to 4 dynes/cm. 41°C 40.64 200 to 5 0.1643 h 46 39.30 5 đ٠ ī 127.83 51 37.99 5 e¹ Ref. Index •c 97 0.1370 5 41°C 1.53610 1 [P]  $\mathbf{n}_{\mathbf{D}}$ Parachor d<sub>c</sub> g/ml 0.374 5 46 1.53362 v ml/g tc °C 20°C 2.67 51 1.53124 4 30 422. 33 40 "C" P<sub>c</sub> mm 33 37544. 261.1 5 Sugd. MR (Obs.) 32.825 4 PV/RT Exp. L.1.%/wt. MR (Calc.) 32.450 5 25°C 30 mm 5 1.0000 (nD-d/2)1.02243 4 1.0000 Dispersion Dielectric 3 0.9519 5 11.5 BP Flash Point °C 81. 3' te 0.9406 5 97 to 7.39476 Fire Point 0.25 tc 1777.8 B \_250 °C M Spec. С 203. 4 ΔHc kcal/m Ultra V. 1 Yes ΔHf A\* 97 to 1.7383 5 X-Ray Dif. AFf 285. B+ 220 °C 1679.7 Infrared 1 Viscosity Solubility in c centistokes Acetone to 3**2** t<sub>x</sub> | 80 °C 1.47 Carbon tet. 90 •c 120 0.784 32 Benzene an 32 160 0.515 10 to 7.7696 5 Ether œ B! L 97 °C 1984.7 5 n-Heptane c٠ 220. 5 70 to 518.2 Ethanol 00 A | 170 °C ₹. 69811 Water A'\* 20 to 97 °C 2.0803 5 Water in B'\* (BV) 1883.3 5 to Ac | 250 to (AV) 7.7327 5 °C Bc \_\_tc\_\_ •c 2098. 5 cp liq. ۰ĸ Cc 242.3 Cryos. A c<sub>p</sub> vap. •ĸ consts. B° c, vap. te °C 211.24 5  $T_R = 0.75 T_c$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: Dow PURIFICATION: Distillation LITERATURE REFERENCES: 3 NBS Circ. 325; 3' Nat. Fire Prot. Assn. 325; 32 Ind. Eng. Chem. 36, 595 (1944) Pardee and Wenrich; 33 I.C.T.

No. 3 NAME m-Cresol STRUCTURAL FORMULA m-Methylphenol Molecular C7H8O Mole Molecular Weight 108.134 % Pur. Ref Ref. F.P. °C F.P. 100% 11.5 3 dt/dP f to °C/mm ١ ۰ĸ g 25°C 64.196 5 B. P. \*C h BP 0.04954 760 mm 202.2 t<sub>e</sub> 0.03220 ſ١ to 100 138.0 3 g' 108.7 4 <u>•к</u> 30 30 mm 0.7405 86.0 10 5 AHm cal/g 47.2 5 m to ΔHv cal/g Pressure n ۰ĸ 25°C 131.87 mm 25°C 0.1930 30 mm 120.66 1295.0 5 t<sub>e</sub> BP 104.70 m' to Density 5 te (d, e) 101 28 n' ۰ĸ g/ml 80°C 0.986 5 101.08 01 120 0.954 3  $\mathbf{d_{4}^{t}}$ AHv/Te 5 23.04 160 0.921 3 110 to Surface tension 139.2 5 1.050 5 dynes/cm. 20°C 0.1707 230 °C 25 to 5 -0.0380 Ъ 30 aי 135.22 e¹ 40 110 °C 0.1339 Ref. Index 5 20°C 1.5438 3 Parachor [P] 0.357 5 d<sub>c</sub> g/ml 25 20°C 2.80 vc ml/g t °C 30 30 426. 5 tc 40 "C" 0.6926 P<sub>c</sub> mm 36000. 5 5 261.1 Sugd. 33.10<sup>≠</sup> MR (Obs.) 5 PV/RT Exp. L.1.%/wt. MR (Calc.) 32,450 5 25°C 1,0000 5 (nD-d/2) 1.0249 5 1.0000 30 mm Dispersion Dielectric 0.9520 5 BP Flash Point C te tc 0.9374 A 110 to 7.53185 Fire Point 0.25 1875.3 B | 240 °C M. Spec. c 201. AHc kcal/m Ultra V. ΔHf A\* 110 to 1.8537 X-Ray Dif. ΔFf B\*[ 230 °C 1771.5 Infrared ĸ Viscosity Solubility in centistokes Acetone to 80 °C 1.76 3 Carbon tet. •c 0.890 \$ 120 3 Benzene 90 160 0.570 3 A'I 15 to 7.9424 Ether 00 B' | 110 °C 5 2138.2 n-Heptane B<sup>V</sup> | 110 to A<sup>V</sup> | 170 °C 672. 2. 2403 220. Ethanol Water A1# 20 to 2.2824 5 Water in B'\* 110 °C (BV) 2033.4 to Ac 240 to Bc tc °C (A<sup>V</sup>)| 7.73634 5 2064. cp liq. ۰ĸ Cc 223.3 Cryos. A. c<sub>p</sub> vap. •ĸ consts. B° c, vap. te °C 223.32 ≠ 80°C  $T_R = 0.75 T_c$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: Lit. Lit. **PURIFICATION:** LITERATURE REFERENCES: 3 Ind. Eng. Chem., 36, 596 (1944)

							No. 4
NAME	p-Cresol					STRUCTURAL I	FORMULA
	p-Methylp	nenol				Ä	
Mole	Ref. Mo	11		Molecular		Ų	
% Pur. 99.	95 1 Fo	rmul		Weight 108.1	34	ČH:	3
		Ref.			Ref.		Ref
F. P. *C	34.78	1	dt/dP			f to	
F.P. 100	<b>-</b>	<u> </u>	*C/mm 25*C	62.82	5	g ' <u>*K</u>	
B. P. °C 760 mm	201.92	1	BP	0.04953	4	h -	
100 30	137.7 108.4	1 4	t <sub>e</sub> 30 mm	0.03215		f' to to g'  K_	
10	85.7	5	ΔHm cal/g	0.7401	4	h'	
1	46.9	5	ΔHv cal/g		-	m   to	
Pressure mm 25°C	0.1976	5	25°C	131.68	5	n   •K	
t <sub>e</sub>	1297.	5	30 mm BP	120.52 104.85	5	<u> </u>	
Density g/ml4l*6	1,01788	1	te te (d, e)	101.38 101.33	5	m' to	
at 46	1.01401	1	ΔHv/Te	23, 12	5	o'	
4 51	1.01020	<b>4</b>	d   108 to	138,68	5	Surface tension	20.00
ь	-0.0377	5		0.1675	5	dynes/cm. 20°C	38.88 5 37.72 5
Ref. Inde	_		e' 108 °C	134.66 0.1193	5	40	36.60 5
<sup>n</sup> D 41°	1.53115 1.57870	1 1	d g/ml vc ml/g	0.347	5	Parachor [P] 20°C	
51	1.52625	4	tc °C	2.88 426.0	5	30 40	
MR (Obs.	0.6839	4	P <sub>c</sub> mm	35000.	5	Sugd.	261.1 5
MR (Calc.		4 5	PV/RT 25°C	1,0000	5	Exp. L.1.%/wt.	
(nD-d/2)	1.02221	4	30 mm	1.0000	5	u. Dispersion	İ
Dielectric		3	BP t <sub>e</sub>	0.9519 0.9394	5	Flash Point °C	
B 250		4	tc	0. 25	5	Fire Point	
С	201.	4	ΔHc kcal/m ΔHf			M Spec. Ultra V.	1
A* 97 to B* 220 °		5	ΔFf			X-Ray Dif. Infrared	1
K F-	-		Viscosity centistokes			Solubility in +	
t <sub>k</sub>			7 °C			Acetone Carbon tet.	80 80
t <sub>x</sub>   20 t		ļ				Benzene	80
B' <u>97</u> •	C 2134.5	5			<u> </u>	Ether n-Heptane	•
C' -	222.	5	B <sup>V</sup> to A <sup>V</sup> C			Ethanol Water	<b>60</b>
A'* 20 t B'* 97 *		5	$(B^{V})$ - $t_0$			Water in	
Ac   250 t	7,8594	5	(A <sup>V</sup> )				
Bc tc_	C 2241.2 - 250.	5	cp liq. °K			1	
Cryos. A	•	Ť	c <sub>p</sub> vap. *K				
te °C	223.02	5	c <sub>v</sub> vap.				
$T_R = 0.$			# 58°C	l	Ь	grams/100 gran	ns solvent
REFEREN		2-A1	PI 3-Lit. 4-C	alc. from det	t. da	ta 5-Calc, by for	
SOURCE:			ow .				
PURIFICA			istillation				
LITERATI	JRE REFERE	NCES	5: 3 NBS Circ.	514			

[						No. 5			
NAME _	2,3-Dimetl		enol			STRUCTURAL FORMULA			
L	2,3-Xylend	1			i	Снэ			
Mole % Pur.	Ref. Mo	ecul:		Molecular Veight 122.16	50	<b>↓</b> СН <sub>3</sub>			
		Ref.			Ref.	Re			
F.P. °C F.P. 100%	75.	3	dt/dP °C/mm			f to g K			
B. P. °C	1		25°C	111.15	5	h			
760 mm 100	218.	3	BP t <sub>e</sub>	0.0527 0.0336	5	f' to			
30	150. 119.2	<b>3</b> 5	90 mm	0,7768	5	g' <u>*K</u>			
10	95.4 55.1	5	ΔHm cal/g			h' i			
Pressure	33.1	-	ΔHv cal/g			m to to			
mm 25°C	0.1084	5	25°C 30 mm	120.09 107.49	5	" <del>"</del>			
t <sub>e</sub>	1333.5	5	BP	92.77	5	m' to			
Density g/ml 20°C	į	1	t <sub>e</sub> (d, e)	89.64 89.22	5	n'   °K			
d <sub>4</sub> 25	i		ΔHv/T <sub>e</sub>	21.26	5	01			
a 30		$\vdash$	d 119 to	125.25	5	Surface tension			
b			e 230 °C d 25 to	0.14898 123.43	5	dynes/cm. 20°C			
Ref. Index	,		e'   119 °C	0.1337	5	40			
n <sub>D</sub> 20°C	1.5420	3	d <sub>c</sub> g/ml			Parachor [P] 20°C			
30	<u> </u>		vc ml/g tc *C			30			
"C"			P <sub>c</sub> mm			40 Sugd. 300.7 5			
MR (Obs.) MR (Calc.)	37.068	5	PV/RT		†	Exp. L.1.%/wt.			
(nD-d/2)	37.000		25°C 30 mm	1.0000	5	u. Dispersion			
Dielectric			BP	0.9473	5	Flash Point *C			
A 119 to	7.38850	4	te tc	0.9306	5	Fire Point			
B   255 °C	1875.2	5	ΔHc kcal/m	<del>                                     </del>	$\vdash$	M. Spec.			
A* 119 to	1.77518	5	ΔHf ΔFf			Ultra V. X-Ray Dif.			
B*  250 °C	1776.4	5	Viscosity	<del> </del>	$\vdash$	Infrared			
c			centistokes			Solubility in T			
t <sub>k</sub> to		l	η °C		1	Carbon tet.			
A'   20 to	7.72393	5				Benzene Ether			
B' 119 °C	2094.1	5	B <sup>V</sup> to	<del> </del>	+-	n-Heptane Ethanol			
A'* 20 to	2,11725	5	B <sup>V</sup> to C		i	Water			
B'+119 °C	1991.8	5	(B <sup>V</sup> )  to			Water in			
Acl to			(A <sup>V</sup> )  °C		<u> </u>	<b>.</b>			
Bc tc C	-		c <sub>p</sub> liq. *K						
Cryos. A° consts. B°			c <sub>p</sub> vap. *K						
t <sub>e</sub> °C	241.83	5	c <sub>v</sub> vap.						
						grams/100 grams solvent			
	ES: 1-Dow			Calc. from de	et. da	ata 5-Calc. by formula			
SOURCE:	TON.		it.						
PURIFICAT			it. S: 3 Ind. Eng.	Chem 36 5	96 (1	944)			
LILERA IU	ni nifekt	E	o, Janu, Bilg.	Jueni. <u>30,</u> 3	, 0 (1				
1									

	2.4.5:			· · ,		No. 6	_	
NAME	2,4-Dimet	<del></del>	enol	·		STRUCTURAL FORMULA OH		
<b> </b>	2,4-Xylend					Снз		
Mole % Pur.	Ref. Mo	lecul rmul	ar С <sub>8</sub> Н <sub>10</sub> О	60	CH <sub>3</sub>			
		Ref.			Ref	1	Ref.	
F.P. °C	27.	3	dt/dP			f to		
F.P. 100%	<b>↓</b>	1	*C/mm 25*C	75,47	5	8 ' <u>*</u> K-		
B. P. *C 760 mm	210.0	3	BP	0.0520	5	h		
100 30	143.0 112.7	3 5	t <sub>e</sub> 30 mm	0.0336 0.7648	5	f' to g' '*K	į	
10	89.3	5	ΔHm cal/g	0.7648	-	h'		
1	49.6	5	ΔHv cal/g	<del> </del>	$\vdash$	m to		
Pressure mm 25°C	0.1634	5	25°C	117.27	5	" <u>*K</u>		
te	1311.	5	30 mm BP	105.58 91.09	5	m' l to		
Density g/ml 20°C	1		te te (d, e)	87.49 87.70	5	n'		
dt 25 4 30	ł		ΔHv/T	22.12	5	0'		
4 30	<del> </del>	$\vdash$	d   115 to	122.35	5	Surface tension dynes/cm. 20°C		
ь	ļ	$\sqcup$	d 225 to	120,60	5	30		
Ref. Index	1		e'   115 °C	0.1334	5	Parachor [P]		
D 25	1		d g/ml vc ml/g tc °C			20°C		
"C"	<del> </del>	$\vdash$	tc •C			30 40		
MR (Obs.)	†	1	P <sub>c</sub> mm			Sugd. 300.1	5	
MR (Calc.) (nD-d/2)	37.068	5	PV/RT 25°C	1.0000	5	Exp. L.1.%/wt.		
Dielectric		-	30 mm BP	1.0000 0.9475	5	Dispersion		
A 115 to	7, 37688	4	te	0.9314	5	Flash Point *C Fire Point		
B [245 °C	1838.9 199.	4 5	t <sub>c</sub> AHc kcal/m		-	M Spec.		
A*   115 to		5	ΔHf			Ultra V. X-Ray Dif.		
B* 240 °C		5	ΔFf	<b>_</b>	ļ.,	Infrared		
c	_	ł	Viscosity centistokes	İ		Solubility in + Acetone		
tk to			η •c			Carbon tet.		
A'   25 to	7.69866	5		İ		Benzene Ether		
B' L115 °C	2045.0	5	B <sup>V</sup> to		-	n-Heptane Ethanol		
A1# 25 to	<del></del>	5	AV   °C			Water		
B'* 115 °C	<del>                                     </del>	5	(B <sup>V</sup> ) to			Water in		
Ac to			(A <sup>V</sup> )  •C		ļ			
Cc	<del> </del>	-	c <sub>p</sub> liq. •K					
Cryos. A° consts. B°			c <sub>p</sub> vap. *K					
t <sub>e</sub> °C	232.74	5	c <sub>v</sub> vap.	1				
REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula								
SOURCE:		Li		Jane. Hom de	ua	J-Carc, by formula		
PURIFICAT	ION:	Li	<del></del>					
LITERATU	RE REFERE	NCES	3 Ind. Eng.	Chem., 36,	596 (	1944)		
1								
L								

							No. 7	
NAME	2,5-Dimethylphenol					STRUCTURAL	FORMULA	
	2,5-Xylend	ol				OH CH <sub>3</sub>		
Mole % Pur.	Ref. Mo	lecul muli		Molecular Veight 122.16	0	нзс		
		Ref.			Ref.		Ref.	
F.P. *C F.P. 100%	73.5	3	dt/dP °C/mm 25°C	75 47	_	f to g*K		
B. P. °C 760 mm 100 30 10	210. 143. 112.7 89.3 49.6	3 3 5 5	BP te 30 mm  AHm cal/g	75.47 0.05198 0.03395 0.7648	5 5 5	h   to g'   oK h'		
Pressure mm 25°C t <sub>e</sub>	0.16343 1292.90	5	AHv cal/g 25°C 30 mm BP	117.27 105.58 91.09 88.10	5 5 5	m to		
g/ml 80°C dt 120 d4 160	0.9650 0.9320 0.8990	3 3 3	t <sub>e</sub> (d, e) ΔHv/T <sub>e</sub> d 115 to	87.80 21.30	5	n' K		
a b Ref. Index	1.0310 -0.0 <sub>3</sub> 825	4	d 115 to e 235 °C d 25 to e 115 °C	122.35 0.1489 120.60 0.1334	5 5 5	dynes/cm. 20°C 30 40		
n <sub>D</sub> 20°C 25 30			d <sub>c</sub> g/ml v <sub>c</sub> ml/g t <sub>c</sub> °C	0.1334	3_	Parachor [P] 20°C 30		
"C"			P <sub>c</sub> mm			40 Sugd.	300, 1 5	
MR (Obs.) MR (Calc.) (nD-d/2)	37.068	5	PV/RT 25°C 30 mm	1.0000	5	Exp. L.1.%/wt. u. Dispersion		
Dielectric  A 115 to B 250 °C	7. 37688 1838. 9	4 4	BP te tc	0.9368 0.9196	5	Flash Point C Fire Point		
A* 115 to B* 245 °C	199. 1.79110 1748,1	5 5	ΔHc kcal/m ΔHf ΔFf			M. Spec. Ultra V. X-Ray Dif. Infrared		
K c to to tx C A'   25 to	7,69866	5	Viscosity centistokes 7 80 °C 120 160	1.61 0.825 0.528	3 3 3	Solubility in + Acetone Carbon tet. Benzene Ether		
B' 115 °C C' A'* 25 to B'*115 °C	2044.96 216. 2.09652 1943.8	5 5 5	B <sup>V</sup>   to A <sup>V</sup>   °C   (B <sup>V</sup> )			n-Heptane Ethanol Water Water in		
Acl to Bc t <sub>c</sub> °C	-		(A <sup>V</sup> )  °C c <sub>p</sub> liq. °K					
Cryos. A° consts. B°			c <sub>p</sub> vap. K					
t <sub>e</sub> °C	232.13	5	c <sub>v</sub> vap.	L	<u>l</u>	<u></u>		
BEERRE	PC. 1 D-:	2 .	DI 2 I 24 4	Colo. ( 1		grams/100 gram		
SOURCE:	ES: 1-DOM	Z-A Li		Caic, irom de	ε. di	ata 5-Calc, by for		
PURIFICAT	TION:		it.					
			S: 3 Ind. Eng.	Chem. 36, 5	96 (1	944)		

						No. 8		
NAME	2,6-Dimetl	nylph	enol			STRUCTURAL FORMULA		
	2,6-Xylend	1				CH3 CH3		
	- 1			M-1				
Mole % Pur.	Ref. Mo	iecui rmul	ar C <sub>8</sub> H <sub>10</sub> O	Molecular Weight 122.1	60	•		
		Ref.			Ref		Ref.	
F, P. *C	49.0	3	dt/dP			f to		
F.P. 100%			*C/mm 25*C	85,49	5	g <u>*K</u>		
B. P. *C 760 mm	212.	3	BP	0.0519	5	h		
100	145.	3	t <sub>e</sub>	0.0334	5	f' to K		
30 10	114.7 91.2	5	30 mm	0.7662	5	g'°K_		
ĭ	51.4	5	ΔHm cal/g			m l to	+	
Pressure			ΔHv cal/g 25°C	118.19	5	n   _ •K	1	
mm 25°C	0.14316	5	30 mm	106.46	5	0		
Density	+	<del></del>	BP t	91.90	5	m¹   to		
g/m1 20°C	1		t <sub>e</sub> (d, e)	88.48	5	$\begin{bmatrix} \mathbf{n'} & \mathbf{i} & \mathbf{i} & \mathbf{i} & \mathbf{-} & \mathbf{K} \end{bmatrix}$		
d <sup>t</sup> 25 4 30			AHV/Te	21.25	5	ļ <u></u> !	+-	
		<del>                                     </del>	d   115 to		5	Surface tension dynes/cm. 20°C		
b		<u> </u>	d'   235 to	121.46	5	30 40	1	
Ref. Index		1	e'   115 °C	0.1309	5	Parachor [P]	+-	
D 25	ĺ		d g/ml			20°C		
30		├	vc ml/g tc °C			30 40		
"C"	ļ	<u> </u>	P <sub>c</sub> mm			Sugd. 300.1	5	
MR (Obs.) MR (Calc.)		5	PV/RT			Exp. L. l. %/wt.		
(nD-d/2)	<b>1</b>	<u> </u>	25°C 30 mm	1.0000	5	u. Dispersion		
Dielectric	<u> </u>		BP	0.9472	5	Flash Point °C	+-	
A 115 to B 250 °C		4	t <sub>e</sub> t <sub>c</sub>	0.9309	"	Fire Point		
c	199.	5	AHc kcal/m	<del>                                     </del>	† •	M Spec. Ultra V.		
A*  115 to	1.7955	5	ΔHÍ ΔFÍ			X-Ray Dif.		
B* ∟245 °C	1761.1	5	Viscosity	+	+	Infrared	4	
·	_}	l	centistokes	1		Solubility in + Acetone		
tk   to tx   *C		ĺ	η •c			Carbon tet.		
A'   25 to		5	1			Benzene Ether		
B' _115 °C	2078.2	5	B <sup>V</sup>   to	-	+	n-Heptane		
A'* 25 to	<del> </del>	5	B to			Ethanol Water		
B'* 115 °C		5	(BV) to	-		Water in	-	
Ac  to			(A <sup>V</sup> ) •C	1				
Bc tc_C	-1		cp liq. •K	+				
Cryos. A*	†	T	c <sub>p</sub> vap. *K				1	
consts. B°	ļ	ļ_	11 -					
t <sub>e</sub> °C	234.88	5	c <sub>v</sub> vap.	1		+ (100		
REFERENC	ES: 1-Dow	2-A1	PI 3-Lit. 4-	Calc from de	t de	grams/100 grams solve ta 5-Calc. by formula	nt	
SOURCE:		Lit		Care. Moni de	ua	- J-Carc. Dy Iormula		
PURIFICAT	TION:	Lit	*					
			S: 3 Ind. Eng.	Chem., <u>36</u> ,	596 (	1944)		

No. 9 3, 4-Dimethylphenol STRUCTURAL FORMULA NAME 3,4-Xylenol Molecular C8H10O Mole Ref. Molecular ČH3 % Pur. Weight 122, 160 Ref. Ref. Ref. F.P. °C F.P. 100% 62.5 3 dt/dP f to °C/mm g °K 25°C 283.78 5 B. P. °C h BP 0.0499 760 mm 225. 3 0.0316 5 ſ١ to 100 160.0 3 g' •<u>к</u> 30 130.1 5 30 mm 0.7580 10 106.8 h' ∆Hm cal/g 67.0 5 1 to m ∆Hv cal/g Pressure ۰ĸ n 25°C 131.86 mm 25°C 0.0387 1332.25 5 ٥ 30 mm 116.35 5 5 te BP 100.90 m' to Density 97.67 5 te te (d, e) 'n •K g/ml 80°C 0.9830 5 3 97.25 o' 120 0.9520  $\mathbf{d_{4}^{t}}$ ΔHv/T<sub>e</sub> 22.92 5 160 0.9210 3 Surface tension 130 to 137.57 \_2<u>40</u> 1.0450 4 a dynes/cm. 80°C 34.00 0.1628 135.54 240 °C 25 to 5 ь -0.03775 4 120 29.90 26.03 5 160 5 e' | 130 °C 0.1475 Ref. Index 5 <sup>n</sup>D 20°C Parachor [P] dc g/ml vc ml/g tc °C 25 20°C 30 30 40 "C"  $P_c$  mm Sugd 300.1 5 MR (Obs.) PV/RT Exp. L.1.%/wt. MR (Calc.) 37.068 5 1.0000 25°C (nD-d/2) 5 30 mm 1.0000 Dispersion Dielectric BP 0.9368 Flash Point C t<sub>e</sub> 0.9198 A 130 to 7.70494 Fire Point B 1 265 °C 2030.9 M. Spec. С 1.96. 5 AHc kcal/m Ultra V. ΔHf A# 130 to 2.10945 5 X-Ray Dif. ΔFf B\*|\_260 °C 1939.0 Infra red Viscosity Solubility in centistokes Acetone to 80 °C 3, 05 3 •c Carbon tet. 120 1.270 3  $t_{\mathbf{x}}$ Benzene 0.737 160 A' | 25 to 8.04870 5 Ether B' | 130 °C 2261.3 n-Heptane B<sub>v</sub> | C 214. to Ethanol °C Water A1# 25 to 2.43692 Water in (B<sup>V</sup>) B'# 130 °C 2158.7 to Acl (A<sup>V</sup>)| °C Bc \_tc\_ •c c<sub>p</sub> liq. ۰ĸ Сc Cryos. Aº c<sub>p</sub> vap. ۰ĸ consts. B° c vap. te °C 247.39 5 grams/100 grams solvent 2-API 3-Lit. REFERENCES: 1-Dow 4-Calc, from det. data 5-Calc. by formula Lit. SOURCE: Lit PURIFICATION: LITERATURE REFERENCES: 3 Ind. Eng. Chem., 36, 596 (1944)

No. 10 3,5-Dimethylphenol STRUCTURAL FORMULA NAME 3,5-Xylenol Molecular C8H10O Mole Ref. Molecular Weight 122, 160 % Pur Formula Ref. Ref Ref. F.P. °C F.P. 100% dt/dP to °C/mm •ĸ g 25°C 206,40 B. P. °C h 0.0495 BP 760 mm 219.5 0.0316 5 ſ١ to 100 155.0 3 g' •ĸ 30 125.4 30 mm 0.7514 5 5 10 102.3 h' ΔHm cal/g 62.8 to m AHv cal/g Pressure •K 25°C 129.06 mm 25°C 0.0543 o 30 mm 114.63 t<sub>e</sub> 1320.2 5 BP 99.45 5 5 Density to m te (d, e) 96.32 •ĸ g/ml 80°C n' 0.9680 95.92 5 o'  $\mathbf{d}_{A}^{\mathbf{t}}$ 120 0.9350 22,87 5 AHV/Te 160 0.9020 3 Surface tension 125 d to 134,85 5 1.0340 dynes/cm. 80°C 31.98 27.83 240 0.1613 5 e <u>•c</u> Ъ -0.03825 ď 120 5 25 to 132.65 5 24.05 Ref. Index 160 e' 125 0.1437 5 20°C [P] n D Parachor d<sub>c</sub> g/ml 25 20°C vc ml/g 30 30  $\mathbf{t_c}$ 40 "C" P<sub>c</sub> mm 300.1 5 Sugd. MR (Obs.) PV/RT Exp. L. 1. %/wt. MR (Calc.) 37.068 5 1.0000 5 25°C (nD-d/2) 30 mm 1.0000 5 Dispersion Dielectric BP 0.9390 Flash Point °C 0.9222 125 to te 7.68771 Fire Point tç L255 °C 2002.1 M Spec. AHc kcal/m 197. 5 Ultra V. ΔHf A\* | 125 to B\* | 250 °C 2.09296 5 X-Ray Dif. ΔFſ 1909.8 Infrared ĸ Viscosity Solubility in c centistokes Acetone to 80 °C 2.50 3 Carbon tet. •c 120 1.075 3 Benzene 160 0.635 AIT 25 to 8.03449 5 Ether B' \_125 °C 2231.9 n-Heptane B<sup>V</sup> A<sup>V</sup> C' 5 215. Ethanol to •c AI\* Water 25 to 2.42472 Water in (BV) B'# 125 °C 2129.3 to Ac (AV) °C Bc •c cp liq. ۰ĸ Cc Cryos. A. ٠ĸ cp vap. consts. B° c, vap. f .C 241.38 5 grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: Lit. PURIFICATION: Lit. LITERATURE REFERENCES: 3 Ind. Eng. Chem., 36, 596 (1944)

	0 - E	Ethylph	enol			П	No. 11	_
NAME							STRUCTURAL FORMULA OH	
ļ1	2-1	Cthylph		T		$\dashv$	C2H5	
Mole % Pur.	R	ef. Me	olecul rmul		Molecular Weight 122.16		V	
			Ref.			Ref.	R	eſ.
F.P. *C	,			dt/dP			f to	
F.P. 1009 B.P. *C	•		+	*C/mm 25*C	51.1706	5	g ' <u>*K</u>	
760 mm	207		3	BP	0.05343 0.0347	5	f' to	
100 30	138		3 5	t <sub>e</sub> 30 mm	0.7740	5	g' <u>*K</u>	
10		. 1 . 2	5	ΔHm cal/g		Ť	h'	
Pressure	+ **		+-	ΔHv cal/g			m to to	
mm 25°C		. 2525	5	25°C 30 mm	111.95	5		
Deseite	1306	. 5	5	BP	87.65	5	m' to	
Density g/ml 20°0				t <sub>e</sub> (d, e)	84.31 84.36	5	n'   •K	
dt 25			1	AHv/Te	20.46	5	1 1	
. 50	+		+	d 105 to	116.89	5	Surface tension dynes/cm, 20°C	
ь				e 230 °C to	0.1413	5	<b>3</b> 0	
Ref. Index				e'   105 °C	0.1242	5	Parachor [P]	
25				d g/ml			20°C	
30			+	vc ml/g tc *C			30	
MR (Obs.	, —		<del> </del>	P <sub>c</sub> mm		<u> </u>	Sugd. 300.1	5
MR (Calc.		. 068	5	PV/RT 25°C	1.0000	5	Exp. L.1.%/wt.	
(nD-d/2) Dielectric			-	30 mm	1.0000	5	Dispersion	
A 105 to		. 23343	4	BP t	0.9489 0.9327	5	Flash Point *C Fire Point	
B   245 °C	1771	. 5	4	t <sub>c</sub>		<u> </u>	M. Spec.	
C	200		5	ΔHc kcal/m ΔHf			Ultra V.	
A*  105 to B*  240 °C	1673	. 62547 . 3	5	ΔFf		<u> </u>	X-Ray Dif. Infrared	
K ——				Viscosity céntistokes		ļ	Solubility in +	
t <sub>k</sub> T to				η •c			Acetone Carbon tet.	
A'   25 to	1	.57011	5				Benzene Ether	
B' 105 °C	1984	. 8	5		<u> </u>	├	n-Heptane	
C'	218		5	B <sup>V</sup> to A <sup>V</sup>   *C		İ	Ethanol Water	
A'* 25 to B'* 105 *(	1883	. 96893 5. 0	5	(B <sup>V</sup> )  to	-	1	Water in	
Acl to			1	(A <sup>V</sup> )  °C		L		
Bc tc C	_			c liq. °K				
Cryos, A				cpvap. *K				
t. °C	230	. 3	5	c <sub>v</sub> vap.				
							grams/100 grams solvent	
	CES:	I -Dow	Z-A Li		Calc, from de	et. de	ata 5-Calc. by formula	
SOURCE: PURIFICA	TION		Li					
		EFER		S: 3 Ind. Eng.	Chem. 36	596	(1944)	
					· · · · · · · · · · · · · · · · · · ·	(	*· · · · · · · · · · · · · · · · · · ·	

No. 12 STRUCTURAL FORMULA NAME m-Ethylphenol 3-Ethylphenol Molecular C8H10O Molecular Mole Ref. Weight 122,160 % Pur Ref Ref. -4.0 3 dt/dP f to F.P. 100% °C/mm g °K 25°C 176.35 B. P. °C h ВP 0.0483 760 mm 214. 3 0.0308 5 ſ to 100 151.0 3 g' °K 30 122.0 5 30 mm 0.7366 5 10 99.3 5 h' ∆Hm cal/g 60.5 5 to m ΔHv cal/g Pressure °K n 25°C 128.74 mm 25°C 0.0637 o 30 mm 114.96 1317.9 te 5 BP 5 99.67 Density g/ml 20°C to m te (d, e) 95.92 5 •ĸ 'n 96.14 0 25  $\mathbf{d_4^t}$ ΔHv/Te 5 23.04 30 Surface tension 135.23 Т 120 to a b dynes/cm. 20°C 235 °C 25 to 120 °C 5 <u>235</u> 0.1662 30 ď 132.30 1 40 Ref. Index e١ 0.1421 20°C (P) n<sub>D</sub> Parachor ďc g/ml 25 20°C vc tc ml/g 30 30 •c 40 "C" P<sub>c</sub> mm 300.1 5 Sugd. MR (Obs.) PV/RT Exp. L.1.%/wt. MR (Calc.) 37,068 5 1.0000 25°C 5 (nD-d/2) 30 mm 1.0000 0.9470 Dispersion Dielectric BP Flash Point °C 0.9316 5 t<sub>e</sub> A 120 to 7.74624 Fire Point 1999.7 t<sub>c</sub> B | 250 °C M Spec. c 197. 5 AHc kcal/m Ultra V ΔHf 2.14114 A\* | 120 to 5 X-Ray Dif. ΔFf B\* 245 °C 1903.9 Infrared ĸ Viscosity Viscos.., centistokes °C Solubility in c Acetone to ا ار Carbon tet. ٠c Benzene 25 to 8.11966 Ether 120 °C 2245.0 n-Heptane B C١ 216. 5 Ethanol ÃV I •c Water A1+ 25 to 2.5110 Water in B'# 120 °C (BV) 2142.3 to Ac to (AV) °C Bc •c cp liq. ۰ĸ Cc Cryos. Aº c<sub>p</sub> vap. ۰ĸ consts. B° c<sub>v</sub> vap. te °C 235, 24 5 grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: Lit. **PURIFICATION:** Lit. LITERATURE REFERENCES: 3 Ind. Eng. Chem., 36, 596 (1944)

4-Ethylphenol  Mole S Pur.  Ref. Molecular C8H10O Molecular Weight 122.160  C2H5	NAME	p-Eth	ylphe	nol	· · · · · · · · · · · · · · · · · · ·			STRUCTURAL	No. 13	
Ref.		4-Eth	ylphe	nol						
Ref.		Ref	. Moi	lecula mula	ar C8H10O		60	$\bigcup_{c_2}$	H <sub>5</sub>	
F. P. 100%   S. P. °C   S. P.				_			Ref.		F	Ref
B P C   760 mm   219				3				1 1		
Pressure   mm   25°C   0,07253   5	760 mm 100 30	153.0 122.9		3 5	BP t <sub>e</sub>	0. 0509 0. 0322	5	h   to g'  *K		
Density g/ml 20°C   dt 25	l Pressure	59.7	7253	5	ΔHv cal/g 25°C			m to		
Ref. Index   Parachor   Paracho	Density g/ml 20°C	<del> </del>	-	5	BP te te (d,e)  AHv/Te	96.50 92.99 92.86	5 5 5	n'  •K		
Ref   Hole   Parachor   Paracho	b				e 245 *C	0.1570 128.89	5	dynes/cm. 20°C 30		
MR (Obs.)   MR (Calc.)   37.068   5   PV/RT   25°C   1.0000   5   Dispersion	<sup>n</sup> D 20°C	;	239	3	d <sub>c</sub> g/ml v <sub>c</sub> ml/g	0.1407	5	20°C 30		
MR (Coalc.) (nD-d/2)  Dielectric  A   125 to	"C"			Ш	, -				300.1	5
A 125 to B 125 °C 1943.1	MR (Calc. (nD-d/2)	37.0	68	5	PV/RT 25°C 30 mm	1.0000	5	Exp. L.1.%/wt. u.		
197.   5   AHc kcal/m   AFf   Litra V.   X-Ray Dif.   Infrared	A 125 to B   255 °C	7.5 1943.1		4	te tc			Fire Point		
A'   25 to   7.89361   5   Ether   n-Heptane   Ethanol   Water   Water   Water   Water in    Ac   to   Bc   tc   °C   Cc   cc   cc   liq. °K   Cry vap.    Cryos. A°   consts. B°   cv vap.    REFERENCES: 1-Dow   2-API   3-Lit.   4-Calc, from det. data   5-Calc. by formula    SOURCE: Lit.   Lit.   Lit.   Lit.   Lit.    Ether   n-Heptane   Ethanol   Water   w	A* 125 to B* 250 °C K c t <sub>k</sub> to	1.9 1843.7		5	ΔHf ΔFf Viscosity centistokes			Ultra V. X-Ray Dif. Infrared  Solubility in Acetone Carbon tet.		
Ac  to   Bc  te °C   Cc	A'   25 to B'   125 °C C' A' * 25 to	2167.9 215.	8558	5 5		_		Ether n-Heptane Ethanol Water		
consts. Be	Acl to Bc <sub>i</sub> t <sub>c</sub> *C		<u> </u>	5	(A <sup>V</sup> )  °C		-			
*grams/100 grams solven  REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det. data 5-Calc, by formula  SOURCE: Lit.  PURIFICATION: Lit.	consts. B				c <sub>p</sub> vap. °K					
REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det. data 5-Calc. by formula  SOURCE: Lit.  PURIFICATION: Lit.	t <sub>e</sub> °C	242.1	5	5	c <sub>v</sub> vap.		<u> </u>	+ grame/100 ~=-	me solve-	
SOURCE: Lit. PURIFICATION: Lit.	REFEREN	CES: 1-	Dow	2-A	PI 3-Lit. 4-	Calc, from d	et. da	<del></del>		
PURIFICATION: Lit.		'						· · · · · · · · · · · · · · · · · · ·		
		TION:								
	LITERATU	JRE REF	FERE	NCE	S: 3 Ind. Eng.	. Chem., <u>36</u> ,	596	(1944)		

······································						No	. 14
NAME	o-Propylpl	enol				STRUCTURAL FORM	MULA
	2-Propylpl	enol				C3 H7	
Mole	Ref. Mo	lecul	AT	Molecular		$\cup$	
% Pur,	Fo	rmul		Weight 136, 1	86		
	<b>,</b>	Ref.		<del>,</del>	Ref		Ref
F.P. 100%		-	dt/dP *C/mm	1		f to	İ
B, P. °C		$\vdash$	25°C	320.22	5	g  K	1
760 mm	220.	3	BP t	0.04725 0.02964		f' to	
100 30	158. 129.2	5	30 mm	0.7325	5	8'   'K_	
10 1	106.7 67.8	5	AHm cal/g			h <sup>1</sup>	
Pressure		+-	ΔHv cal/g			m to	
mm 25°C	0.03336	5	25°C 30 mm	121.46 107.53	5	ö   <del>-</del>	İ
Posedter.	1338.8	5	BP	93.55	5	m' l to	
Density g/ml 90°C	1,015	3	t (d, e)	90.41 90.26	5	n'  *K_	
dt 25 4 30			ΔHv/T	23.93	5	0'	
•	<del>                                     </del>	$\vdash$	d   130 to		5	Surface tension dynes/cm, 20°C	
ь			240 °C	124.80	5	30 40	
Ref. Index n <sub>D</sub> 20°C			•' j 130 °C	0.1337	5	Parachor [P]	
25			d g/ml			20°C	l
"C"		₩	tc °C			30 40	ł
MR (Obs.)	<del> </del>	$\vdash$	P <sub>c</sub> mm				).1 5
MR (Calc.)	41.686	5	PV/RT 25°C	1,0000	5	Exp. L.1.%/wt.	
(nD-d/2) Dielectric	<b></b>	$\vdash$	30 mm	1.0000	5	Dispersion	
A 130 to	7,92416	4	BP t	0.9502	5	Flash Point °C	
B 1 255 °C	2103.	4	¹c.	<u> </u>		Fire Point M Spec.	
C	197.	5	ΔHc kcal/m ΔHf			Ultra V.	ŀ
A*   130 to B* 250 °C	2.35515 2004.1	5	ΔFf	<u> </u>		X-Ray Dif. Infrared	
K			Viscosity centistokes	1		Solubility in +	
t <sub>k</sub>   to	1		η •c			Acetone Carbon tet.	
t C *C	8,27990	5		1		Benzene	
B' [130 °C	2341.6	5				Ether n-Heptane	
C'	215.	5	B <sup>V</sup>   to	1		Ethanol Water	
A'* 25 to B'* 130 °C		5	(BV)	-[		Water in	
Ac  to			(A <sup>V</sup> ) •C	1			
Bc tc C		1	cp liq. •K	<del></del>			
Cryos, A*	1	1	c <sub>p</sub> vap. *K				
consts, B°	<b></b>	ـ	c <sub>v</sub> vap.				
t. °C	241.38	5	1 -vp.	1	L	L	
REFERENC	ES: 1-Dow	2-A1	PI 3-Lit, 4-0	Calc from do	+ 4-	grams/100 grams sta 5-Calc, by formula	
SOURCE:		Li		oa.c. mom de		a 3-care, by formula	<u> </u>
PURIFICAT	ION:	Li					
LITERATU	RE REFERE	NCES	3: 3 Ind. Eng	. Chem., <u>36</u> ,	596	(1944)	

	D 1.1					No. 15	
NAME	m-Propylph				STRUCTURAL FORMULA	٠	
	3-Propylph	enol	<del></del>				ı
Mole % Pur.	Ref. Mo	lecul rmul	ar C <sub>9</sub> H <sub>12</sub> O	Molecular Veight 136,18	86	<b>С</b> 3Н7	
		Ref.			Ref.	F	Ref.
F.P. °C	26.0	3	dt/dP			f to	
F.P. 1009	•	├	*C/mm 25*C	414.70	5	g ' • <u>K</u>	
B. P. *C 760 mm	228.	3	BP	0.04890 0.30300	5	h	
100 30	163.9 134.4	3	t <sub>e</sub> 30 mm	0.30300	5	f' to oK	
10	111.2	5	ΔHm cal/g	0.7322	-	h'	
1	71.5	5	ΔHv cal/g		1	m to	
Pressure mm 25°C	0. 02561	5	25°C	122.17	5	n   <u>*K</u>	
t <sub>e</sub>	1362.42	5	30 mm BP	107.42 93.32	5	m' to	
Density g/ml 20°0			t <sub>e</sub>	90.07 89.88	5	n'ı eK	
at 25		Ì	te (d, e)  AHv/Te	23.41	5	0'	
	<b></b>	<u> </u>	d 135 to	127.66	5	Surface tension	
a b		1	e 1 250 °C	0.1506	5	dynes/cm. 20°C	
Ref. Index			d'   25 to	125, 55 0, 1349	5	40	_
<sup>n</sup> D 20°C	3		d <sub>c</sub> g/ml			Parachor [P] 20°C	
30		l	II v_mi/g			30	
"C"			tc*C Pcmm			40 Sugd. 339.1	5
MR (Obs.) MR (Calc.		5	PV/RT		$\vdash$	Exp. L.1.%/wt.	
(nD-d/2)	7 41.000	"	25°C 30 mm	1.0000	5	u. Dispersion	
Dielectric			RP	0.9500	5	Flash Point *C	
A 135 to		4	t. t.	0.9344	5	Fire Point	
B 1_265 °C	2100.7 196.	5	ΔHc kcal/m		<del>                                     </del>	M. Spec.	
A* 135 to		5	ΔHf ΔFf			Ultra V. X-Ray Dif.	
B*[2 <u>60</u> °C	1999.7	5	Viscosity			Infrared	
c	_	1	centistokes		1	Solubility in * Acetone	
t <sub>k</sub> to		1	η ·c		1	Carbon tet. Benzene	
A'   25 to		5				Ether	
B' 1_1 35 °C	2335.8	5	B <sup>V</sup> to A <sup>V</sup> C			n-Heptane Ethanol	
A1# 25 to	2.61424	5				Water	
B'* 135 °C	<del></del>	5	(B <sup>V</sup> )  to	1		Water in	
Ac to			(A <sup>V</sup> )  °C		-		
Cc	_	1_	c <sub>p</sub> liq. *K				
Cryos, A' consts. B'			c <sub>p</sub> vap. *K				
t <sub>e</sub> °C	250.86	5	c <sub>v</sub> vap.	l		grams/100 grams solvent	
REFEREN	CES: 1-Dow	2-A	PI 3-Lit. 4-	Calc. from de	et. de	ata 5-Calc. by formula	
SOURCE:		Li	it.				
PURIFICA	TION:	Li	t.				
LITERATI	JRE REFERE	NCE	S: 3 Ind. Eng.	Chem., <u>36</u> ,	596	(19 <del>44</del> )	
1							
1							

No. 16 p-Propylphenol STRUCTURAL FORMULA NAME Molecular C9H12O Mole Ref. **Molecular** Č3 H7 Weight 136, 186 % Pur. Ref. Ref. F.P. \*C 22.0 3 dt/dP to F.P. 100% °C/mm g <u>•K</u> 25°C 380.97 B. P. \*C h BP 0.05118 5 760 mm 232.6 0.03157 ſ١ to 100 166.0 5 ŧ, g¹ •K 135.4 30 5 30 mm 0.7743 5 111.67 5 10 h' ∆Hm cal/g 71.04 5 to AHv cal/g m Pressure ٠ĸ 25°C n 119.73 104.90 5 mm 25°C 0.02845 o 30 mm t<sub>e</sub> 1377.07 5 BP 90.81 5 m' to Density 87.48 5 te (d, e) g/ml 80°C n' •ĸ 1.009 3 5 87.27 01 25  $\mathbf{d_4^t}$ AHV/T 22.47 5 30 Surface tension 135 135 to 260 °C 20 to 124.54 d 5 <u>2</u>60 dynes/cm. 20°C 0.1450 5 Ъ 30 123.09 ı 40 Ref. Index ·c •' 135 0.1343 20°C (P) n<sub>D</sub> Parachor d<sub>c</sub> g/ml 25 20°C vc ml/g 30 30 40 "C" P<sub>c</sub> mm 339.1 5 Sugd. MR (Obs.) PV/RT Exp. L.1.%/wt. MR (Calc.) 41.686 5 1.0000 5 25°C (nD-d/2) u. 30 mm 1.0000 Dispersion 0.9500 Dielectric BP Flash Point °C t<sub>e</sub> 0.9335 5 A | 135 to 7.65517 Fire Point tc 2041.5 В M Spec. C 5 195. AHc kcal/m Ultra V ΔHf A\* | 135 to 2.0737 5 X-Ray Dif. ΔFf B+ 275 °C 1939.3 Infrared ĸ Viscosity Viscoss, centistokes °C Solubility in c Acetone tk | to Carbon tet. •c Bensene A' 20 to 7.9917 Ether B١ <u> 135</u> ℃ 2270.0 n-Heptane ΒŰ C' 213. 5 Ethanol ÃV I •c Water Ai+ 20 to 2.4247 5 Water in B'# 135 °C (BV) 2167.2 to Acl to (A<sup>V</sup>) °C Bc •c cp liq. ۰ĸ Cc Cryos. A\* c<sub>p</sub> vap. •K consts. B° c, vap. f .C 257.04 5 grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: Lit. PURIFICATION: Lit. LITERATURE REFERENCES: 3 Ind. Eng. Chem., 36, 596 (1944)

NAME	o-tert-But	vlphe	nol	_	No. 17 STRUCTURAL FORMULA				
NAME	2-tert-But				$\neg$	Õн			
<b></b>					$\dashv$	C(CH <sub>3</sub> ) <sub>3</sub>			
Mole % Pur.	Ref. Mo	ecul mula		Molecular Veight 150,21	2	,			
		Ref.			Ref.		Ref.		
F. P. °C			dt/dP			f to			
F.P. 100%			°C/mm	134 54		g•K			
B. P. °C 760 mm	221.	3	25°C <b>B</b> P	136.54 0.05269	5	h			
100	153.	3	t <sub>e</sub>	0.03327	5	f' to			
30 10	122. 2 98. 3	5	30 mm	0.7782	5	g' '° <u>K</u>			
1	57.9	5	ΔHm cal/g		<del> </del>	m to	+		
Pressure	0.00((0	_	ΔHv cal/g 25°C	99.45	5	n  •K			
mm 25°C	0.08663	5	30 mm	88,58	5	0			
Density		<del> </del>	BP t <sub>e</sub>	76.35 73.53	5	m' to			
g/ml 20°C	ļ	1	te (d, e)	73 35	5	n'   <u>•K</u>			
d <sub>4</sub> 25	į		ΔHv/T <sub>e</sub>	210	5.	Sunfa and America	+		
a			d 125 to e 245 °C	103.69 0.1237	5	Surface tension dynes/cm. 20°C			
ь		<del> </del>	d' 25 to	102.25	5	30 40			
Ref. Index			e'   125 °C	0.1119	5	Parachor [P]	<del></del>		
D 25	Ì		d g/ml			20°C			
"C"	<del>                                     </del>		t <sub>c</sub> *C		ŀ	30 40			
		<del> </del>	P <sub>c</sub> mm			Sugd. 378.1	5		
MR (Obs.) MR (Calc.)		5	PV/RT 25°C	1.0000		Exp. L.1.%/wt.			
(nD-d/2)		<u>l</u>	30 mm	1.0000	5	u. Dispersion			
Dielectric		ļ	BP	0.9503 0.9340	5	Flash Point *C	_		
A 125 to B   420°C		4	te tc	0.7340	1	Fire Point			
С	197.	5	AHc kcal/m			M. Spec. Ultra V.			
A* 125 to	1.88268	5	ΔHf ΔFf			X-Ray Dif.			
B* _255°C K	1794.0	5	Viscosity			Infrared +			
t, to	-		centistokes			Solubility in TACETONE			
t <sub>k</sub>   t <sub>0</sub>   t <sub>x</sub>   °C		ŀ	η ·c			Carbon tet. Benzene			
A'   25 to		5				Ether			
B' 1_125 °C	2114.8	5	B <sup>V</sup> to C			n-Heptane Ethanol			
A1# 25 to	<del></del>	5	A <sup>V</sup> L C		1	Water			
B'* 125 °C		5	(B <sup>V</sup> )  to			Water in	+-		
Ac to			(A <sup>V</sup> )  °C		-	1			
Cc C	-		c <sub>p</sub> liq. •K						
Cryos. A° consts. B°			c <sub>p</sub> vap. *K						
t <sub>e</sub> °C	245.25	5	c <sub>v</sub> vap.						
BEEDDEN	7DC 1 D		TOT 2 T.44 4	Cala face: 1	- 4 - 3	grams/100 grams solv	ent		
SOURCE:	ES: 1-Dow		it.	Cale. Irom d	et. a	ata 5-Calc. By formula			
PURIFICA?	rion.		it.						
			S: 3 Ind. Eng.	Chem 36	596 4	1944)			
			J 2g.	5, <u>50,</u>	- / - (	,- , <b>,</b>			
I									

						No. 18	
NAME	m-tert-But	ylpho	enol			STRUCTURAL FORMULA	
I					$\neg$	OH	
Mole % Pur.	Ref. Mo	lecul rmul		Molecular Weight 150, 21	12	C(CH <sub>3</sub> ) <sub>3</sub>	
		Ref.			Ref	F	Ref.
F.P. *C F.P. 100%	41.	2	dt/dP *C/mm	530.00	,	f   to g  *K_	
B. P. °C 760 mm 100 30	240. 172. 140.9	3 3 5	25°C BP t <sub>e</sub> 30 mm	528.09 0.0523 0.0319 0.7883	5 5 5	h f' to g'*K_	
10	116.7 75.4	5	ΔHm cal/g			h'	
Pressure mm 25°C t <sub>e</sub>	0.0201 1398.7	5	ΔHv cal/g 25°C 30 mm BP	110.59 95.92 82.88	5 5 5	m   to n •K o	
Density g/ml 20°C dt 25 d4 30			te te (d,e) AHv/Te	79.67 79.50 22.21	5 5 5	m'   to n'   •K o'   •	
a b			d   140 to e   270 °C d'   20 to	114.45 0.1315 113.75	5 5	Surface tension dynes/cm. 20°C 30 40	
Ref. Index n <sub>D</sub> 20°C 25 30			e' 140 °C  d g/ml vc ml/g tc °C	0,1266	5	Parachor [P] 20°C 30	
"C"	ļ		P <sub>c</sub> mm			40 Sugd. 378.1	5
MR (Obs.) MR (Calc.) (nD-d/2)	46.304	5	PV/RT 25°C 30 mm	1.0000	5	Exp. L.1.%/wt. u. Dispersion	
Dielectric  A 140 to B 330 °C		4 4	BP t <sub>e</sub> t <sub>c</sub>	0.9501 0.9329	5	Flash Point *C Fire Point	
A*   140 to B*   275 °C	193. 2.06375	5 5 5	ΔHc kcal/m ΔHf ΔFf			M Spec. Ultra V. X-Ray Dif. Infrared	
t <sub>k</sub> to			Viscosity centistokes 7 °C			Solubility in + Acetone Carbon tet. Benzene	
A'   20 to B' _140 °C C'		5 5 5	B <sup>V</sup>   to			Ether n-Heptane Ethanol	
A'* 20 to B'* 140 °C	2171.7	5	(B <sup>V</sup> ) to			Water Water in	
Bc tc_C			c <sub>p</sub> liq. •K				
Cryos. A° consts. B°		_	c <sub>p</sub> vap. *K				
t <sub>e</sub> °C	265.71	5	c <sub>v</sub> vap.	L	L	ļ (100	
REFERENC	ES: 1-Dow	2-A1	PI 3-Lit 4-C	alc from de	de	rgrams/100 grams solvent ta 5-Calc. by formula	
SOURCE:		Li		de	ua	- J-Carc. by formula	_
PURIFICAT	ION:	Li	<del></del>				
			S: 3 Ind. Eng.	Chem., <u>36</u> ,	596	(1944)	

NAME	1	p-teri	-Buty	ylphe	nol			STRUCTURAL FORMULA			
		-teri	- Buty	ylphe	nol			OH			
Mole % Pur.		Ref	Mol	lecula mula		Molecular Weight 150.2	12	C (CH3)3			
				Ref			Ref.		Ref		
F.P. *C		100.		3	dt/dP °C/mm			f to g K			
B. P. °C 760 mm 100 30 10		239.5 170. 138.4 113.9 72.2		3 3 5 5	25°C BP te 30 mm  ΔHm cal/g ΔHv cal/g	396.83 0.05373 0.03297 0.8000	5 5 5	h   to g'   to g'   to m   to			
Pressure mm 25°C t <sub>e</sub> Density g/ml 80° dt 25 d4 30	1:	0.0 393.1 0.9		5 5	25°C 30 mm BP t <sub>e</sub> t <sub>e</sub> (d, e) ΔHv/T <sub>e</sub>	107.16 93.40 80.54 77.15 77.18 21.50	5 5 5 5 5	m' to n' K			
Ref. Inde					d 140 to e 265 °C d 25 to e' 140 °C d g/ml	111.01 0.1272 110.20 0.1213	5 5 5 5	Surface tension dynes/cm. 20°C 30 40 Parachor [P] 20°C			
MR (Obs. MR (Calc (nD-d/2)	٠)	46. 3	04	5	vc ml/g tc °C Pc mm PV/RT 25°C 30 mm	1.0000	5	30 40 Sugd. 378.1 Exp. L.1.%/wt. u. Dispersion	5		
Dielectric  A   140 to B   370 to	2 10	7.4 999.8	9264	4 4 5	BP te tc ΔHc kcal/m	0.9497 0.9289	5	Flash Point *C Fire Point  M. Spec.			
A* 140 to B* 275 ° K c t <sub>k</sub> to	2 18		5278	5	AHC Keal/III AHF Viscosity centistokes 7 °C			Ultra V. X-Ray Dif. Infrared  Solubility in + Acetone Carbon tet.			
A'   25 t B'   140 ° C' A'* 25 t B'* 140 °	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	222.2	1835 9311	5 5 5 5	B <sup>V</sup>   to A <sup>V</sup>   *C   (B <sup>V</sup> )  *C			Benzene Ether n-Heptane Ethanol Water Water in			
Bc tc Cryos. A	•				c <sub>p</sub> liq. °K c <sub>p</sub> vap. °K						
te °C	-	265.8	7	5	c <sub>v</sub> vap.		_				
B P P P P P P			D		DI 2 124 4	Cala ( 1	. د ه	grams/100 grams sol	vent		
SOURCE:	CES	: 1	DO#	Z-A.		Caic, from d	et. da	ita 5-Caic, by formula			
PURIFICA	TIO	N·		Li							
			ERE		3: 3 Ind. Eng.	Chem., 36,	596 (	1944)			

No. 20 STRUCTURAL FORMULA NAME o-n-Butylphenol ОН 2-n-Butylphenol Molecular C10H14O Mole Molecular % Pur Formula Weight 150, 212 Ref. Ref. -20. 3 dt/dP f to F.P. 100% \*C/mm 25\*C g <u>•ĸ</u> ı 216.93 0.05566 B. P. \*C h BP 5 760 mm 235. 0.03444 5 ſ١ to t<sub>e</sub> 100 163.5 3 <u>•</u>K g' 0.8109 30 131.3 5 30 mm 5 10 106.5 h' ∆Hm cal/g 64.6 to m AHv cal/g Pressure •ĸ 25°C 30 mm 101.47 88.98 n mm 25°C 0.05344 ٥ 5 5 1388.6 5 ВP 76.41 m' to Density te te (d, e) 73, 34 5 g/ml 80°C •ĸ 0.975 5 73.12  $\mathbf{d_{4}^{t}}$ AHV/Te 20.58 5 30 Surface tension 130 to 104.91 d 5 dynes/cm. 20°C <u>260</u> •c 0.1213 5 ь 30 -2<u>5</u> to 104.41 40 Ref. Index e¹ 130 °C 0.1175 5 20°C 1,496 3 [P]  $n_D$ Parachor d g/ml v ml/g 25 20°C ml/g 30 tc C 30 40 "C" P<sub>c</sub> mm Sugd. 378.1 5 MR (Obs.) PV/RT Exp. L.1.%/wt. MR (Calc.) 46.304 25°C 1,0000 5 (nD-d/2)u. 30 mm 1.0000 5 Dispersion Dielectric BP 0.9500 5 Flash Point °C t<sub>e</sub> 0.9324 5 A 130 to 7.28486 Fire Point tc 1889.3 <u> 460 °C</u> M Spec. C 194. 5 AHc kcal/m Ultra V. ΔHf A\* | 130 to 1.74142 X-Ray Dif. ΔFf B\* 280 °C 1785.8 Infrared Viscosity ĸ Solubility in ć centistokes Acetone to ቴ | ቴ | Carbon tet. •c Benzene 25 to 7.60622 Ether В' <u> 130 °C</u> 2104.2 n-Heptane BVI 212. Ethanol ÃV I A'\* 25 to °C Water 2.08587 Water in B'# 130 °C 2002.8 (BV) to Ac (AV) •c Bc cp liq. ۰ĸ Cc Cryos. A\* c<sub>p</sub> vap. •ĸ consts. B. c<sub>v</sub> vap. te °C 262.10 grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: Lit. PURIFICATION: Lit. LITERATURE REFERENCES: 3 Ind. Eng. Chem., 36, 596 (1944)

NAME	m-n-1	Butylpher	101	1	STRUCTURAL FORMULA			
	3-n-B	utylphen	ol			OH		
Mole % Pur.	Ref.	Molecul Formul	a C <sub>10</sub> H <sub>14</sub> O	2	Сан			
		Ref		L	Ref.		Ref	
F.P. °C F.P. 1007	6		dt/dP *C/mm			f to g•K_		
B. P. °C 760 mm 100 30	248. 179. 147.4	3 3 5	25°C BP t <sub>e</sub> 30 mm	806.34 0.0531 0.0320 0.8003	5 5 5	h   to   g'  *K	-	
10 1	122.8 80.9	5 5	ΔHm cal/g			h' to	-	
Pressure mm 25°C t <sub>e</sub>	0.01 1418.2	29 5 5	ΔHv cal/g 25°C 30 mm BP	113.34 97.48 84.09 80.76	5 5 5	n   *K   to		
Density g/ml 80°0 dt 25 4 30	0.97	40 3	t <sub>e</sub> (d, e) ΔHv/T <sub>e</sub>	80, 54 22, 14	5	n'^K_ o'Surface tension		
a b			d 145 to e 275 °C d 25 to	117.1 0.1331 116.57	5 5 5	dynes/cm. 20°C 30 40		
Ref. Index nD 20°0 25 30			e'   145 °C d <sub>c</sub> g/ml v <sub>c</sub> ml/g t <sub>c</sub> °C	0.1295	5	Parachor [P] 20°C 30		
"C" MR (Obs.			P <sub>c</sub> mm			40 Sugd. 378.1	5	
MR (Calc. (nD-d/2)	46.30	4 5	PV/RT 25°C 30 mm BP	1.0000 1.0000 0.9480	5 5 5	Exp. L.1.%/wt. u. Dispersion		
A 145 to B 1290 °C		676 5 5 5	te tc	0.9303	5	Flash Point C Fire Point  M. Spec.		
A* 145 to B* 285 °C K c t <sub>k</sub> to	1979.9	862 5	ΔHf ΔFf  Viscosity centistokes η °C			Ultra V. X-Ray Dif. Infrared  Solubility in + Acetone Carbon tet.		
A'  25 to	7.94					Benzene Ether		
B'   145 °C C' A'* 25 to	210.	5 5 353 5	B <sup>V</sup> to A <sup>V</sup>   °C			n-Heptane Ethanol Water		
B'*145 °C  Acl to Bc te °C	,	5	(B <sup>V</sup> )  to (A <sup>V</sup> )  °C c <sub>p</sub> liq. °K		-	Water in		
Cryos. A'			c <sub>p</sub> vap. *K					
t <sub>e</sub> °C	274.69	5	c <sub>v</sub> vap.			1,55		
REFEDEN	CES: 1-F	Ow 2-4	PI 3-13+ 4-	Calc from d	p d.	grams/100 grams so ata 5-Calc. by formula	vent	
SOURCE:	JEG. 1-L		it. 3-211. 4-	11 OIII U	u	J-0010. by 101111416		
PURIFICA	TION		it.		-			
			S: 3 Ind. Eng.	Chem., 36,	596	(1944)		

						No. 22		
NAME	p-n-Butylp	heno	1		STRUCTURAL FORMULA			
	4-n-Butylp	heno	l			ŎĦ.		
Mole % Pur.	Ref. Mo	lecul		Molecular Weight 150.2	12	C4 H9		
		Ref.			Ref	Re		
F.P. °C F.P. 100%	22.	3	dt/dP *C/mm			f to to		
B. P. °C 760 mm 100 30 10	248.0 179.0 147.0 122.4	3 3 5 5	25°C BP t <sub>e</sub> 30 mm	764.86 0.05338 0.03202 0.8026	5 5 5	h to g'   '*K_		
1	80.4	5	ΔHm cal/g		$\vdash$	m to		
Pressure mm 25°C t <sub>e</sub>	0.01364 1428.1	5 5	ΔHv cal/g 25°C 30 mm BP	112.74 97.00 84.09	5 5 5	n     - •K       to		
Density   g/ml 80°C   dt 25   d <sub>4</sub> 30	0.978	3	t <sub>e</sub> (d, e) ΔHv/T <sub>e</sub>	80, 79 80 62 22, 13	5 5	n' •K_		
a b			d   145 to e   275 °C d   25 to	115.79 0.1278 115.97	5 5 5	Surface tension dynes/cm. 20°C 30		
Ref. Index n <sub>D</sub> 20°C 25 30		3	e' 145 °C  d g/ml vc ml/g tc °C	0.1290	5	40 Parachor [P] 20°C 30		
"C"			P <sub>c</sub> mm			40 Sugd. 378.1 5		
MR (Obs.) MR (Calc. (nD-d/2)		5	PV/RT 25°C 30 mm	1.0000	5	Exp. L.1.%/wt. u. Dispersion		
Dielectric			BP	0.9500 0.9360	5	Flash Point *C		
A 145 to B 380 °C		4 5	te t <sub>c</sub>	0.7300		Fire Point M Spec.		
A*   145 to B*   285 °C K		5 5	ΔHf ΔFf Viscosity			Ultra V. X-Ray Dif. Infrared		
t <sub>k</sub>   to			rentistokes 7°C			Solubility in + Acetone Carbon tet. Benzene		
A'   25 to B' _145 'C		5 5 5	B <sup>V</sup> to A <sup>V</sup>   *C		-	Ether n-Heptane Ethanol		
A** 25 to	2196.1	5	(B <sup>V</sup> ) to			Water Water in		
Ac   to			(A <sup>V</sup> )   °C c <sub>p</sub> liq. °K					
Cryos. A° consts. B°			c <sub>p</sub> vap. *K					
t <sub>e</sub> °C	275.16	5	c <sub>v</sub> vap.		<u>L</u>	grams/100 grams solvent		
REFEREN	CES: 1-Dow	2-A1	PI 3-Lit. 4-C	alc. from de	t. da	ta 5-Calc. by formula		
SOURCE:			it.					
PURIFICA"	TION:	L	it.					
LITERATU	RE REFERE	NCE	S: 3 Ind. Eng.	Chem., <u>36</u> , 9	596 (	1944)		

Mole Ref. Molecular C11H16O Molecular Weight 164.238 CH3	NAME	2-tert-But	yl-4-	methylphenol		STRUCTURAL FORMULA			
Ref.   Ref.		Ref. Mo	lecul rmula	r с <sub>11</sub> н <sub>16</sub> 0	Molecular Weight 164.2	38	CH <sub>3</sub>		
F.P. 100%  B.P. *C 100						Ref.		Rei	
BP	F.P. 1009		3	*C/mm	308.75	5	g <u>*K</u>		
Pressure mm 25°C	760 mm 100 30 10	167. 135.3 110.7	3 5 5	t <sub>e</sub> 30 mm	0.05422 0.03334	5	f' to g'*K		
Source   S	Pressure mm 25°C t <sub>e</sub>	0.03628	5	ΔHv cal/g 25°C 30 mm BP	83.94 72.28	5	n		
Parachor [P]   Para	g/ml 80°C	0.892	3	ΔHv/T <sub>e</sub>	69. 25 21. 24	5	0'	-	
C   C   C   C   C   C   C   C   C   C	b Ref. Index			e   265 °C to	0.1146 98.80	5	dynes/cm. 20°C 30 40		
P <sub>C</sub> mm   Sugd. 417.1   5	25 30			d g/ml vc ml/g tc °C			20°C		
Dielectric	MR (Obs.) MR (Calc. (nD-d/2)	) 50.922	5	P <sub>c</sub> mm PV/RT 25°C			Sugd. 417.1 Exp. L.1.%/wt. u.	5	
A* 135 to B* 275 °C 1854.1 5	A 135 to B   370 °C	7.42327 1957.8	4	t t c			Flash Point *C Fire Point		
The second content of the late of the la	A* 135 to B* 275 °C	1.91788	5	ΔHÍ ΔFÍ			X-Ray Dif. Infrared	_	
B   140 °C   2177.7   5   B   110 to   831.0   4   4   4   4   4   4   4   4   4	'k	;	_	7 80 °C 120	1.170	3	Acetone Carbon tet, Benzene		
Bi* 140 °C   2075. 7   5   (BV)   to   (AV)   °C	B'   140 °C	2177.7	5	B <sup>V</sup>   110 to A <sup>V</sup>   170 °C	831.0		n-Heptane Ethanol Water		
Cryos. A° consts. B° c <sub>p</sub> vap. °K consts. B° c <sub>v</sub> vap. °K consts. B° c <sub>v</sub> vap. °F consts. B° c <sub>v</sub> vap. °F consts. B° c <sub>v</sub> vap. °F consts. B° c <sub>v</sub> vap. °F consts. Consts. B° c <sub>v</sub> vap. °F consts. Consts. B° c <sub>v</sub> vap. °F consts. Cons	Ac to	1	5	(A <sup>V</sup> )  °C			water in	T	
REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det. data 5-Calc, by formula  SOURCE: Lit.  PURIFICATION: Lit.	Cryos. Acconsts. B			c <sub>p</sub> vap. *K					
SOURCE: Lit. PURIFICATION: Lit.					<u> </u>	<u></u>		nt	
	SOURCE:		Li	t.	Calc, from de	et. de	ita 5-Calc, by formula		
		·			Chem., <u>36</u> ,	596 (	1944)	<del></del>	

No. 24 STRUCTURAL FORMULA NAME 2-sec-Butyl-4-methylphenol CH(CH3)CH2CH3 Molecular C 11H16O Ref. Molecular Mole Weight 164,238 ČH3 % Pur. Formula Ref. Ref Ref. F.P. C F.P. 100% dt/dP f °C/mm <u>°K</u> g 25°C 420.7 B. P. \*C h BP 0.0524 760 mm 237.0 3 0.0321 5 ſ 100 169.0 5 •ĸ g' 30 137.9 5 0.7869 5 30 mm 10 113.8 h' ∆Hm cal/g 1 72.6 5 to ∆Hv cal/g Pressure n ٩K 25°C 99.34 mm 25°C 0.0257 30 mm 5 86.62 1390.9 t<sub>e</sub> 5 74.82 BP 5 to 5 m' Density g/ml 20°C 71.95 t<sub>e</sub> (d, e) ٠ĸ 'n 71.79 5  $\mathbf{d_{4}^{t}}$ o' ΔHv/Te 25 5 22,06 30 Surface tension 1 140 103,03 5 5 dynes/cm. 20°C 1 260 0.1190 •C ь 30 25 to 102.15 40 Ref. Index 140 0.1127 n<sub>D</sub> 20°C [P] Parachor g/ml d 25 a V C 20°C ml/g 30 30 •c tc 40 "C" P<sub>c</sub> mm Sugd. 417.1 5 MR (Obs.) PV/RT Exp. L. l. %/wt. 50.922 5 MR (Calc.) 25°C 1.0000 (nD-d/2) 30 mm 1.0000 Dispersion Dielectric ΒP 0.9500 Flash Point °C 0.9333 A 140 to 7,58277 t<sub>e</sub> Fire Point tç 2026.5 B 275 °C M Spec. С 194. 5 AHc kcal/m Ultra V ΔHf A\* | 140 to 2.07791 X-Ray Dif. ΔFf B+ 270 °C 1923.1 Infrared Viscosity Viscos.., centistokes °C Solubility in Acetone to Carbon tet. •c Benzene 7.91389 25 to Ether B' 140 °C 2252.3 n-Heptane B<sup>V</sup> | C١ 212. 5 Ethanol to •c A'\* 25 to B'\* 140 °C Water 2.42779 (BV) Water in 2149.8 to Ac| to  $(A^{V})_{1}$ **°**C Bc cp liq. ۰ĸ Сc Cryos. A. cp vap. consts. B° t. °C c, vap. 262,47 5 grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula Lit. SOURCE: PURIFICATION: Lit. LITERATURE REFERENCES: 3 Ind. Eng. Chem., 36, 596 (1944)

NAME	p-te	ert-Hyd	roxy	benzene		Т	STRUCTURAL FORMULA			
NAME		ert-Am			······································		OH OH			
<u> </u>	T	T					$\cap$			
Mole % Pur.	R	ef. Mo	lecul rmula		Molecular Weight 164.2	38	CH2 C (CH3)3			
-			Ref.			Ref.	<del></del>	Ref.		
F. P. °C				dt/dP		1	f to			
F.P. 1009	6			°C/mm 25°C	2093, 2	5	g• <u>K</u>			
B.P. °C 760 mm	262	5	3	BP	0.05374		h			
100	192	. 5	5	t <sub>e</sub>	0.0317	5	f' to to			
30 10	160		5	30 mm	0.8155	5	g' ' <u>*K</u>			
1	92		5	ΔHm cal/g		-	m to	+		
Pressure mm 25°C	١,	00466	5	ΔHv cal/g 25°C	110, 30	5	n  •K			
t <sub>e</sub>	1456	. 00466 . 7	5	30 mm BP	92.93	5	0			
Density				t.	80.15 76.81	5	m' to to			
g/ml 80°0	0	. 962	3	t <sub>e</sub> (a, e)	76.60	5	;·			
d <sub>4</sub> 25				ΔHv/T <sub>e</sub>	22. 37	5	Surface tension	<del>                                     </del>		
a b				d 160 to e 290 °C	113.0 0.1251	5	dynes/cm. 20°C			
Ref. Index			$\vdash$	d' 25 to	113.50	5	30 40			
n 20°0				d <sub>c</sub> g/ml	0,1284	13	Parachor [P]			
25				vc ml/g tc °C			20°C   30			
"C"	$\top$			II -		1	40			
MR (Obs.	,			P <sub>c</sub> mm	ļ	↓	Sugd. 417.5	5		
MR (Calc. (nD-d/2)	.)  50	. 922	5	25°C	1.0000	5	Exp. L.1.%/wt.			
Dielectric	. +		$\vdash$	30 mm BP	1.0000 0.9470	5	Dispersion			
A 160 to		. 68125	5	t	0.9284	5	Flash Point *C Fire Point			
B 1_305 °C	2167	. 4	5	, с	<b>_</b>	-	M. Spec.	_		
A* 160 to	189	. 16322	5	ΔHc kcal/m ΔHf			Ultra V. X-Ray Dif.	1		
B* _300 °C			5	ΔFf			Infrared			
K				Viscosity centistokes			Solubility in +			
t <sub>k</sub> Tto			1	η •c		1	Acetone Carbon tet.			
A'   25 to		. 9982	5				Benzene			
B' 160 °C	2396	. 5	<b>卜</b> 5 .	<del>                                     </del>	<del> </del>	+-	Ether n-Heptane			
C'	207	<del></del>	5	B <sup>V</sup> to C			Ethanol Water			
A'* 25 to B'* 160 °C		. 50585 . 2	5	(B <sup>V</sup> )  - to	-]	1	Water in			
Ac to	,		Ť	(A <sup>V</sup> )  °C						
Bc tc C	<u> </u>			c <sub>p</sub> liq. °K			1			
Cryos. A	.   -		+-	-			1			
consts. B				р.		1				
t <sub>e</sub> °C	290	.74	5	c <sub>v</sub> vap.						
							grams/100 grams sol	/ent		
	CES:	1-Dow			Calc. from de	et. d	ata 5-Calc. by formula			
SOURCE:	TION		Li Li							
PURIFICA		FFFFF			Chem 3/	504	(1044)			
L. EKAI	ONE R	-FERE	L	S: 3 Ind. Eng	. Cnem., 36,	270	(1733)			
1										
t .										

No. 26 NAME 4-n-Amylphenol STRUCTURAL FORMULA Molecular C 11H16O Molecular Weight 164,238 Ref. Mole ČsHı % Pur Formula Ref. Ref Ref. 23. F.P. \*C F.P. 100% 3 dt/dP to °C/mm <u>°K</u> g 25°C 983.04 5 B. P. °C h BP 0.0531 5 250.5 760 mm 3 ſ 0.0317 5 to 100 181.5 5 g' °K 30 149.9 30 mm 0.8012 5 10 125.3 h١ AHm cal/g 83.29 1 to ΔHv cal/g Pressure n ٠ĸ 25°C 105.28 0.0104 mm 25°C 5 o 30 mm 90.10 5 1434.9 t<sub>e</sub> ВP 78.11 m¹ to Density 75.01 t (d, e) •ĸ g/ml 80°C n' 0.960 3 74.87 5 ۰' ď4 25 ΔHv/T 22.36 5 30 Surface tension 107.96 150 to 5 dynes/cm. 20°C 275 °C 25 to 0.1191 ь ď۰ 30 108.32 40 Ref. Index e' 150 °C 0.1216 5 20°C 1.5272 3 n<sub>D</sub> Parachor [P] c g/ml d 25 20°C v<sub>c</sub> t<sub>c</sub> ml/g 30 30 •c 40 "C" P<sub>c</sub> mm Sugd 417.1 5 MR (Obs.) PV/RT Exp. L. 1. %/wt. MR (Calc.) 50,922 5 25°C 1.0000 (nD-d/2) 30 mm 1.0000 Dispersion Dielectric BP 0.9533 Flash Point °C 0.9362 A 150 to te 7.63596 Fire Point 2099.4 B <u>L290 °C</u> M Spec. 191. 5 AHc kcal/m Ultra V. ΔHf A\* | 150 to 2.11460 X-Ray Dif. ΔFſ B+ 285 °C 1991.9 Infrared Viscosity Visco..., centistokes \*C Solubility in Acetone Carbon tet. •c Benzene 25 to 7.96118 Ether B' [150 °C 2327.0 n-Heptane B<sup>V</sup> | 209. to Ethanol •c Water A1# 25 to 2.47102 Water in (BV) B'\* 150 °C 2224.9 to Ac | (AV) °C Bc \_tc\_\_°C cp liq. ۰ĸ Cc Cryos. A. ۰ĸ cp vap. consts. B° to C c, vap. 277.71 5 grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: Lit. **PURIFICATION:** Lit. LITERATURE REFERENCES: 3 Ind. Eng. Chem., 36, 596 (1944)

NAME	4-tert	-Amy	y1-2-	methylphenol	STRUCTURAL FORMULA OH CH3					
Mole % Pur.	Ref.	Mol For	lecul		Molecular Weight 178,26	4	CH <sub>2</sub> C(CH <sub>3</sub> ) <sub>3</sub>			
			Ref.			Ref.	Re			
F. P. *C	1			dt/dP	<u> </u>					
F.P. 100%			$\vdash$	*C/mm		ļ	f to g - K			
	<del>                                     </del>		$\vdash$ $\vdash$	25°C	4860.2	5				
B. P. °C 760 mm	273.		3	BP	0.05356		h			
100	203.		5	t,	0.0309	5	f' to			
30	170.7		5	30 mm	0.8205	5	g' ' <u>*K</u>			
10	145.5		5	ΔHm cal/g			1 h' i			
1	102.2		5	ΔHv cal/g	<del></del>	_	m to			
Pressure	1			25°C	107.45	5	n			
mm 25°C	0.00	019	5 5	30 mm	89.23	5	•			
t <sub>e</sub>	1472.4		ا ا	BP	77.30	5	m' to			
Density			1	t <sub>e /</sub> ,	74.04	5	n' i 'K			
g/ml 20°C	l			t (d, e)	73.89	1	0'			
dt 25 4 30	1			ΔHv/T <sub>e</sub>	22.94	5				
	<del> </del>		$\vdash$	d 170 to		5	Surface tension dynes/cm. 20°C			
ь				300 <u>•</u> C		5	30 30			
Ref. Index	<del>                                     </del>		$\vdash$	d'   25 to		5	40			
n <sub>D</sub> 20°C	1				0.1250	5	Parachor [P]			
D 25				d <sub>c</sub> g/ml			20°C			
30				vc ml/g	i		30			
"C"							40 Sugd, 456, 1 5			
MR (Obs.)	1			P <sub>c</sub> mm	<u> </u>	<u> </u>				
MR (Calc.)	55.54	40	5	PV/RT	1,0000	۔ ا	Exp. L.1.%/wt.			
(nD-d/2)				25°C 30 mm	1.0000	5	u. Dispersion			
Dielectric	1			BP	0.9506	5				
A 170 to	7 79	3820	4	t <sub>e</sub>	0.9322	5	Flash Point *C Fire Point			
B   380°C		,020	4	l tc		1				
c	187.		5	AHc kcal/m	1		M. Spec. Ultra V.			
A* 170 to	2.29	9102	5	ΔHf	1		X-Ray Dif.			
B* 315 °C	2147.9		5	ΔFf		├	Infrared			
к — — —				Viscosity		İ	Solubility in +			
t, to				centistokes			Acetone			
K '				າ •c			Carbon tet.			
A'   25 to	8 10	0579	5				Bensene Ether			
B' 170 °C	2490.3	,	5			<u> </u>	n-Heptane			
C' -	205.		5	B <sup>V</sup> to C			Ethanol			
A1# 25 to	2.64	1192	5	A <sup>V</sup> I °C			Water			
B'# 170 °C			5	(B <sup>V</sup> )  to	7	1	Water in			
Acl to				(A <sup>V</sup> )  °C						
Bc tc C	1				†	<del>                                     </del>	1			
Cc	1			c <sub>p</sub> liq. •K		1				
Cryos, A°				c <sub>p</sub> vap. *K	1	1				
consts. B°	<u> </u>			_	1	1				
t <sub>e</sub> *C	302.22	2	5	c <sub>v</sub> vap.		<u> </u>	*			
DEFEDEN	FC. 1-1	)ow	2 - A	DI 3-1.it 4	Calc from de		grams/100 grams solvent ata 5-Calc, by formula			
	, 20. 1-1		Li		Care, month de		John Jane			
SOURCE:							<del></del>			
PURIFICAT			Li							
LITERATU	RE REF	ERE	NCE	5: 3 Ind. Eng	. Chem., <u>36</u> ,	596	(1944)			

No. 28 STRUCTURAL FORMULA NAME 4-tert-Amyl-3-methylphenol CH<sub>3</sub> Molecular Ref. Molecular C<sub>12</sub>H<sub>18</sub>O Mole CH2 C(CH3)3 Weight 178,264 % Pur Ref. Ref Rcf. F.P. C dt/dP f °C/mm <u>°</u>K g 25°C 4440.67 B. P. \*C h BP 0.05397 5 760 mm 273. 3 0.0312 5 ſ١ to 100 202,5 5 g' •ĸ 30 170.1 5 30 mm 0.8240 5 10 144.7 h! AHm cal/g 101.4 5 to ΔHv cal/g ١ Pressure n ۰ĸ 25°C 106.64 mm 25°C 0.00209 30 mm 88.61 5 1487.8 5 t<sub>e</sub> BP 76.50 5 to Density g/ml 20°C m t<sub>e</sub> (d, e) 73.23 5 ٠ĸ n' 73.05 5 0 25  $\mathbf{d_{4}^{t}}$ ΔHv/Te 5 22,68 30 Surface tension 170 to 108,6 dynes/cm. 20°C \_300 °C 25 to 5 0.1176 ь 30 ď 109.7 to 40 Ref. Index 170 °C 0.1243 20°C [P]  $\mathbf{n}_{\mathbf{D}}$ d g/ml v ml/g t C C Parachor 25 20°C 30 30 "C" 40 P<sub>c</sub> mm Sugd 456.1 5 MR (Obs.) PV/RT Exp. L. l. %/wt. MR (Calc.) 55.540 5 25°C 1.0000 (nD-d/2) 30 mm 1.0000 Dispersion 5 Dielectric BP 0.9480 Flash Point °C 0.9292 5 A 170 to 7.75037 t<sub>e</sub> Fire Point tç 2240.0 B 410 °C M Spec. С 187. 5 AHc kcal/m Ultra V ΔHf A\* | 170 to 2.25809 X-Ray Dif. ΔFf B+ 310 °C 2132.3 Infrared Viscosity Viscos.., centistokes °C Solubility in c Acetone to Carbon tet. •c Benzene A' | 25 to 8,06660 Ether 2471.5 B' 170 °C n-Heptane  $\mathbf{B}^{\widehat{\mathbf{v}}}$ c٠ 205 5 to Ethanol ĀV i A'\* 25 to B'\* 170 °C •c Water 2.60314 (BV) Water in 2369.2 to Ac | to  $(A^{V})_{1}$ °C Bc •c cp liq. ۰ĸ Cryos. A\* c<sub>p</sub> vap. consts. B° c<sub>v</sub> vap. te °C 302.32 5 grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula Lit. SOURCE: PURIFICATION: Lit. LITERATURE REFERENCES: 3 Ind. Eng. Chem., 36, 596 (1944)

NAME	2-tert-An	yl-4-	methylphenol		STRUCTURAL FORMULA			
					CH <sub>2</sub> C(CH <sub>3</sub>	)3		
Mole % Pur.	Ref. Me	rmula		Molecular Weight 178.26	4	CH <sub>3</sub>		
		Ref.		1	Ref.		Ref	
F, P, °C	27.	3	dt/dP			f to		
F.P. 100%			°C/mm			8   °K	1	
B. P. °C			25°C BP	1139.07 0.05302	5	h		
760 mm 100	252. 183.	5	t <sub>e</sub>	0.03167	5	f¹ to		
30	151.3	5	30 mm	0.8022	5	g'° <u>K</u>		
10 1	126.7	5	∆Hm cal/g			h'		
	84.8	+-	ΔHv cal/g		t	m to		
Pressure mm 25°C	0.00880	5	25°C	98.87	5	n <u>*K</u>	-	
t <sub>e</sub>	1432.76	5	30 mm BP	83.49 72.15	5		-	
Density			t.	69.23	5	m' to r' K	1	
g/ml 20°C t 25	1		t <sub>e</sub> (a, e)	69.10	5	;,		
d <sup>t</sup> 25 4 30	İ		AHv/T <sub>e</sub>	22.34	5	Sunface to sign		
a	·		d 150 to	100.53	5	Surface tension dynes/cm. 20°C		
<u>b</u>			_a	0.1126	5	<b>8</b> 30		
Ref. Index			e'   150 °C	0.1218	5	40		
<sup>n</sup> D 20°C			d <sub>c</sub> g/ml		1	Parachor [P] 20°C		
30	1.		vc ml/g tc °C		ĺ	30		
"C"			t <sub>c</sub> °C P <sub>c</sub> mm		ŀ	40 Sugd. 456, 1	5	
MR (Obs.)			PV/RT	-		Exp. L.1.%/wt.	+-	
MR (Calc.) (nD-d/2)	55.540	5	25°C	1.0000	5	u.		
Dielectric	+	+	30 mm BP	1.0000	5	Dispersion		
A 150 to	7,65505	+	t_	0.9500 0.9324	5	Flash Point *C Fire Point		
B   380 °C		4	t <sup>e</sup> c			L		
С	191.	5	ΔHc kcal/m ΔHf			M. Spec. Ultra V.		
A*  150 to B*  290 °C	2, 17451	5	ΔFf			X-Ray Dif.		
K 290 C	2009.3	1 "	Viscosity			Infrared	+-	
·			centistokes		1	Solubility in * Acetone		
t <sub>k</sub> to t <sub>x</sub> °C		1	η ·c			Carbon tet.		
A'   25 to	7.90769	) 5				Benzene Ether		
B' 150 °C	2291.5	5	<b>-</b>	ļ	-	n-Heptane		
C'	205.	5 _	B <sup>V</sup> to A <sup>V</sup> C			Ethanol Water		
A'* 25 to B'* 150 °C		5 5	l⊢.=v. <del></del>	-		Water in	1	
Acl to	1	+-	11					
Bc tc °C				<del> </del>	+	╣		
Cc — —		1	c <sub>p</sub> liq. *K					
Cryos. A° consts. B°			c <sub>p</sub> vap. *K					
t <sub>e</sub> °C	279.12	5	c <sub>v</sub> vap.			1,55		
REFEDEN	TES: 1-Dow	2 - A	PI 3-13+ 4	Calc from de		grams/100 grams solv ata 5-Calc. by formula	ent	
SOURCE:	,		it.	ue				
PURIFICA	TION:		it.					
			S: 3 Ind. Eng.	Chem 36	506	(1944)		
		3.102	o. J ma, Eng.	Chem., <u>50</u> ,	3,0	(1711)		

No. 30 STRUCTURAL FORMULA NAME 6-tert-Butyl-2, 4-dimethylphenol (CH<sub>3</sub>)<sub>3</sub>C<sub>1</sub> CH<sub>3</sub> Ref. Molecular C<sub>12</sub>H<sub>18</sub>O Molecular Weight 178, 264 Mole CH<sub>3</sub> % Pur Ref. Ref Ref. F.P. °C F.P. 100% 22.3 3 dt/dP ſ to °C/mm °K. g 25°C 866.44 B. P. °C h ВP 0.0531 5 760 mm 249. 3 ſ 0.03199 5 to 100 180. g' °K 30 5 0.80096 148.4 30 mm 5 10 123.8 h' AHm cal/g 1 81.8 to m ΔHv cal/g Pressure n •K 25°C 95.94 0.01192 1 mm 25°C 30 mm 82.45 72.11 5 te 1418.2 5 5 BP Density g/ml 80°C to m te te (d, e) 69.70 5 •ĸ n' 0.917 3 69.37 120 o'  $\mathbf{d_4^t}$ 0.888 ΔHv/Te 22,64 5 160 0.859 3 Surface tension ď 150 to 97.70 5 0.9458 4 dynes/cm. 20°C . 1 275 •c 0.1028 Ъ -0.0372 4 30 ď٠ to 98.67 40 Ref. Index 150 0.1093 20°C [P] **n**D Parachor d v t c g/ml 25 20°C ml/g 30 30 •c 40 "C" P<sub>c</sub> mm Sugd. 456.1 5 MR (Obs.) PV/RT Exp. L.1.%/wt. MR (Calc.) 1.0000 25°C 5 (nD-d/2) 30 mm 1.0000 5 Dispersion Dielectric BP 0.9467 Flash Point °C 0.9286 A 150 to 7.62910 te Fire Point 2094.0 B 1290 °C M Spec. C 192. 5 AHc kcal/m Ultra V ΔHf A\* | 150 to 2.15724 5 X-Ray Dif. ΔFſ B+ 285 °C 1990.8 Infrared Viscosity Solubility in c centistokes Acetone to 80 °C 2.10 Carbon tet. •c 120 1.060 Benzene 160 0.670 3 A' 25 to 7.95443 Ether 2321.3 B' (150 °C 5 n-Heptane B<sup>V</sup> | 120 to A<sup>V</sup> | 170 °C C١ 210. 5 848.5 4 Ethanol 3.8674 Water A1# 25 to 2.49929 5 (BV) Water in B'# 150 °C 2218.7 to Ac | to (A<sup>V</sup>) Bc \_tc\_ •c cp liq. •ĸ Cc Cryos. A\* c<sub>p</sub> vap. •ĸ consts. B° r .C c, vap. 275.68 5 grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: Lit. PURIFICATION: Lit. LITERATURE REFERENCES: 3 Ind. Eng. Chem., 36, 596 (1944)

NAME	4	-tert	- Buty	1-2,	-dimethylphen	ol		STRUCTURAL FORMULA			
Mole % Pur.		Ref.	Mol	lecula		Molecular	4		нзс О	CH <sub>3</sub> H <sub>3</sub> ) <sub>3</sub>	
70 Pur.			FOI	7	12 10	Weight 178.2	Ref.	ř			Ref
	1	71 2		Ref.	1: (15	<del> </del>	Kei.		1		IXE.
F.P. *C F.P. 100%	+-	71.2			dt/dP °C/mm			f	to K		
B. P. *C	$\top$			$\vdash$	25°C	2123.	5	g h			
760 mm		64.		3	BP	0.05417 0.03184	5	f'	to		+
100 30		93.5 61.1		5	t <sub>e</sub> 30 mm	0.8199	5	g'	- K		
10		36.0		5	ΔHm cal/g	0.8177		h'			1
1	<u>+-</u> '	92.98	1	5	ΔHv cal/g	<del> </del>	╁─	m	to		
Pressure mm 25°C		0.00	440	5	25°C	101.45	5	n	<u>•</u> K		i
t <sub>e</sub>	140	61.3	400	5	30 mm	85.50	5	سنسا			$\perp$
Density	$\top$			Н	BP t <sub>e</sub>	73.65 70.54	5	m'	to		1
g/ml 80°C	;	0.93	9	3	te (d, e)	70.35	5	n' !	_ •ĸ		
dt 25 4 30	1				ΔHv/T <sub>e</sub>	22.22	5				+-
•	+			Н	d 160 to	104.1	5		tension cm. 20°C		-
ь					_e290 •C	0.1152 104.4	5	8,200,	30		İ
Ref. Index					e'   160 °C	0.1174	5	<u></u>	40		+-
<sup>n</sup> D 20°C	'	1.53	11	3	d <sub>c</sub> g/ml			Parach	or [P] 20°C		1
30					v <sub>c</sub> mi/g		ł	1	30		
"C"					tc *C Pc mm			1	40 Sugd	456.1	5
MR (Obs.)					PV/RT	<del> </del>	-	Frn I	.1.%/wt.	130.1	+-
MR (Calc. (nD-d/2)	י וי	55.54	0	5	25°C	1.0000	5		u.		1
Dielectric	+			Н	30 mm BP	1.0000	5	Disper			
A 160 to		7.65	067	5	t <sub>e</sub>	0.9469 0.9283	5	Flash I Fire P	Point *C		1
B   400 °C		64.8	701	5	t c		l	<u> </u>			┿
С	-	89.		5	ΔHc kcal/m ΔHf			M. Spe Ultra V			
A* 160 to B* 300 °C		2.17 58.9	552	5	ΔFf			X-Ray			ł
K See S	- 20	30. 7			Viscosity			Infrare			+-
t,	-1				centistokes n °C			Solubili Aceto			1
tk   to					າ •c			Carbo			ļ
A'   25 to	+	7.97	750	5			1	Benze Ether	ne		1
B' 160 °C	239	93.1 07.		5	-v I	<del>                                     </del>	╁	n-Hep			-
C'	+-		740	5	B <sup>V</sup> to A <sup>V</sup> C	•	1	Ethan Water			
A'* 25 to B'* 160 °C		2.51 90.6	149	5	(B <sup>V</sup> )  to	-	1	Water			
Acl to				$\Box$	(A <sup>V</sup> )  °C						
Bc tc C					c liq. °K		1	1			
Cc	+			-	l .		1				
Cryos. A° consts. B°					c <sub>p</sub> vap. *K			ļ			
t <sub>e</sub> °C	2	92.6		5	c <sub>v</sub> vap.						
									s/100 gra		nt
	CES:	1-1	)ow	2-A	PI 3-Lit. 4-	Caic, from de	et. de	ata 5-Ca	ic. by for	mula	
SOURCE:	TION			Lit							
PURIFICA			FDF			<b>6</b> 1 - 61	50/				
MIEKAI	.R.E.	ALF.	LKE	14 CES	3 Ind. Eng.	Chem., <u>36</u> ,	596 (	(1944)			

No. 32 STRUCTURAL FORMULA 4-tert-Butyl-2, 6-dimethylphenol NAME CH<sub>3</sub> Molecular C 12H18O Mole Ref. Molecular Č(CH3)3 Weight 178, 264 % Pur Ref. Ref Ref. 82.4 dt/dP f to F.P. 100% °C/mm g <u>°K</u> ١ 25°C 536.9 B. P. \*C h BP 0.05539 5 248. 760 mm 3 0,03350 5 ſ 176.5 5 to 100 g' •K 5 30 144.1 30 mm 0.8186 5 10 119.0 5 h' ∆Hm cal/g 76.49 5 to ΔHv cal/g m Pressure •K n 25°C 91.63 mm 25°C 0.02015 5 ٥ 30 mm 79.04 5 1422, 1 5 t<sub>e</sub> BP 67.94 5 to 1 Density te te (d, e) 65.10 5 g/ml 80°C n' •ĸ 0.916 5 3 64.94 ۰, 25 ΔHv/T<sub>e</sub>  $d_4^t$ 21.12 5 30 Surface tension 1 145 94.42 5 to dynes/cm. 20°C •c 5 <u>275</u> 0.1068 h 30 25 to ď٠ 94.28 ı 40 e' •c Ref. Index 145 0.1058 5 <sup>n</sup>D 20°C [P] Parachor d<sub>c</sub> g/ml vc ml/g tc °C 25 20°C 30 30 40 "C" P<sub>c</sub> mm Sugd 456.1 5 MR (Obs.) PV/RT Exp. L. 1. %/wt. 5 MR (Calc.) 55.540 25°C 30 mm 1.0000 5 (nD-d/2) 1.0000 5 Dispersion Dielectric 0.9490 BP 5 Flash Point °C 0.9306 t<sub>e</sub> 145 to 7.42037 Fire Point 1997.4 t<sub>c</sub> B | 290 °C M Spec. Ultra V С 192. 5 AHc kcal/m ΔHf A\* 145 to 1.94338 5 X-Ray Dif. AFf B+ 285 °C 1892.3 Infrared Viscosity Solubility in c centistokes Acetone to 80 °C 2.72 Carbon tet. ٠c 120 1.32 3 Benzene 160 0,820 3 A' | 25 to 7.73868 Ether 2217.1 B' 145 °C n-Heptane 1 100 to C 926. 3. 76552 210 5 Ethanol A | 170 °C Water 25 to 2.2864 5 B'\* 145 °C (BV) Water in 2115.1 5 to (A<sup>V</sup>)<sub>1</sub> Ac | to ٠c Bc •c cp liq. °K Сc Cryos. A\* c<sub>p</sub> vap. ۰ĸ consts. B° c, vap. te °C 276.1 5 grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: Lit. PURIFICATION: Lit. LITERATURE REFERENCES: 3 Ind. Eng. Chem., 36, 596 (1944)

NAME	6-tert-E	Sutyl-3,	l-dimethylphen	$\dashv$	STRUCTURAL FORMU	LA	
Mole % Pur.	Ref. 1	Molecula Formula		Molecular Weight 178.2	64	(CH <sub>3</sub> ) <sub>3</sub> C CH <sub>3</sub>	
		Ref.			Ref.		Re
F.P. °C F.P. 1009	46.0	3	dt/dP °C/mm			f to to SK	
B. P. °C 760 mm 100 30 10	258.5 187.0 154.4 129.1 86.1	3 3 5 5	25°C BP t <sub>e</sub> 30 mm	1145.47 0.05518 0.03278 0.8244	5 5 5	f' to g' °K	
Pressure mm 25°C t <sub>e</sub>			ΔHv cal/g 25°C 30 mm BP	96.38 82.42 70.90 67.88	5 5 5	m   to n   - *K	
g/ml 80°0 dt 120 d4 160	0.920 0.892 0.863	3 3 3	t <sub>e</sub> (d, e) ΔHv/T <sub>e</sub>	67.71 21.59	5	o' Surface tension	-
a b Ref. Index	0.976 -0.0 <sub>3</sub> 7		d   155 to e   285 °C d'   25 to e'   155 °C	99.50 0.1107 99.08 0.1079	5 5 5	dynes/cm. 20°C 30 40	
<sup>n</sup> D 20°0 25 30		2 3	d g/ml vc ml/g tc °C	0.107		Parachor [P] 20°C 30	
"C"	0,685	2 4	P <sub>c</sub> mm			40 Sugd. 456, 1	5
MR (Obs. MR (Calc. (nD-d/2)	) 55.540 1.041	4 5 4	PV/RT 25°C 30 mm BP	1.0000 1.0000 0.9480	5 5	Exp. L.1.%/wt. u. Dispersion	
A 155 to B   300°C	7,525	18 4 4 5	te tc AHc kcal/m	0.9292	5	Flash Point C Fire Point M. Spec.	
A* 155 to B* 295°C K		46 5 5	ΔHf ΔFf Viscosity			Ultra V. X-Ray Dif. Infrared Solubility in +	
t <sub>k</sub> t <sub>x</sub> t <sub>x</sub>	7.876		7 80°C 120 160	3. 50 1. 37 0. 782	3 3	Acetone Carbon tet. Benzene Ether	
B'   155°C  C'  A'* 25 to  B'* 155°C	210.	5 5 45 5	B <sup>v</sup>   110 to A <sup>v</sup>   176 °C (B <sup>v</sup> )  to	1037. 3.4994	4 4	n-Heptane Ethanol Water Water in	
Acl to Bc tc °C	,	7	$(B')$ to $(A^{V})$ °C $c_{p}$ liq. °K				
Cryos. A consts. B			c <sub>p</sub> vap. °K				
t <sub>e</sub> °C	287.30	5	c <sub>v</sub> vap.		<u>L</u> _	grams/100 grams solve	ent
REFEREN SOURCE:	CES: 1-Do	w 2-Al		Calc. from de	et. da	ata 5-Calc, by formula	
PURIFICA		Lio RENCES	: 3 Ind. Eng.	Chem., 36,	596 (	1944)	

NAME	4-tert-Bu	tvl - 2 -	ethylphenol	<del></del>		No. 34 STRUCTURAL FORMULA				
NAME		.,	· · · · · · · · · · · · · · · · · · ·			OH C2 H5				
	TT				$\neg \uparrow$	[]"	2715			
Mole % Pur.	Ref. M	olecul ormul		Molecular Weight 178.2	64	С(СН	13)3			
		Ref.			Ref		Ref.			
F.P. °C F.P. 100%	<u> </u>	+	dt/dP *C/mm		1	f to				
B. P. °C	ļ	+	25°C	1329.2	5	g <u>*K</u>				
760 mm	257. 187.	3 5	BP t <sub>e</sub>	0.0538 0.0320	5	f' to				
30	154.9	5	30 mm	0.8123	5	g'   'K_				
10	130.0 87.4	5	ΔHm cal/g			h' to				
Pressure mm 25°C	0,0076	5	ΔHv cal/g 25°C	98.10	5	n •K				
t <sub>e</sub>	1443.5	5	30 mm BP	83.85 72.26	5 <b>5</b>	°i				
Density g/ml 20°C			t <sub>e</sub> (d, e)	69.24	5	m' to				
at 25			ΔHv/T	69.09	5	0'				
4 30	ļ	+	d   155 to	101.45	5	Surface tension dynes/cm. 20°C				
ь	ļ	$oldsymbol{ol}}}}}}}}}}}}}}}}}$	285 °C		5	30				
Ref. Index n <sub>D</sub> 20°C	ļ	1	e' 155 °C	0.1096	5	Parachor [P]				
25	ļ		d g/ml vc ml/g		1	20°C				
"C"	<b>†</b>	$\dagger$	1 tc C			40	45/ ,   ,			
MR (Obs.)			P <sub>c</sub> mm PV/RT		┼	Sugd. Exp. L.1.%/wt.	456.1 5			
MR (Calc.) (nD-d/2)	55.540	5	25°C 30 mm	1.0000	5	u.	}			
Dielectric			BP	0.9480	5	Dispersion Flash Point °C				
A 155 to B 150 °C	7.62460 2120.5	5	t <sub>e</sub> t <sub>c</sub>	0.9297	5	Fire Point				
C	190.	5	ΔHc kcal/m ΔHf			M Spec. Ultra V.				
A*   155 to B* 295 °C	2.14398 2015.2	5	ΔFf			X-Ray Dif. Infrared				
K			Viscosity centistokes		-	Solubility in +				
t <sub>k</sub>  to			7 ·c			Acetone Carbon tet.				
A' 25 to		5	ł			Bensene Ether				
B' [155 °C		5	B <sup>V</sup>   to	<u> </u>	+-	n-Heptane Ethanol				
A1# 25 to	2.52158	+	ĀV I Č	_		Water				
B'* 155 °C	+	5	(B <sup>V</sup> ) to			Water in				
Bc t C			c <sub>p</sub> liq. •K	<del> </del>	+-	1				
Cryos. A*	<del>                                     </del>	+-	11							
consts. B	<u> </u>	_	P							
t <sub>e</sub> °C	284.90	5	c <sub>v</sub> vap.	<u> </u>	<u> </u>	+ arama/100 ====	a salus=t			
REFERENCES: 1-Dow 2-API 3-Lit, 4-Calc. from det. data 5-Calc. by formula										
SOURCE:			it.							
PURIFICAT			it.							
LITERATU	RE REFERI	ENCE	S: 3 Ind. Eng.	Chem., <u>36</u> ,	596 (	(1944)				
L										

NAME	2-tert	-Buty	1-4-	ethylphenol		STRUCTURAL FORM		
Mole % Pur.	Ref.	Mo	lecul		Molecular Weight 178.2	:64	C(CH <sub>3</sub> ) <sub>3</sub>	
<i>W</i> 1 U		1.0.	Ref		T T	Ref.		Re
F. P. *C	i			dt/dP	1	1		
F.P. 100%			-	*C/mm		1 1	f to	- }
B. P. *C	<u> </u>			25°C	768.07	5	h	
760 mm	250.		3	BP	0.0542	5	- <del></del>	
100	179.		5	t <sub>e</sub>			f' to to	
30 10	147.7		5	30 mm	0.8101	5	h'=	
1	80.6		5	ΔHm cal/g		$\perp$	F.	
Pressure				ΔHv cal/g	04.70	1.	m to to	
mm 25°C	0.01	36	5	25°C 30 mm	94.79	5	0	
t <sub>e</sub>	1426.8		5	BP	69.96	5	m¹ † to	+
Density g/ml 20°C			l l	te (d. a)	67.08	5	n' K	1
				Te (a, e)	66.91	5	o!	1
d <sub>4</sub> 25				ΔHv/T <sub>e</sub>	21.71	5	Surface tension	+
8				d 150 to	97.59	5	dynes/em. 20°C	
ь				-280 °C	0.1105 97.54	5	¥ 30	- [
Ref. Index				e'   150 °C	0.1102	5	40	$\bot$
n <sub>D</sub> 20°C				d <sub>c</sub> g/ml			Parachor [P]	1
25 30			] ]	v mi/g			20°C	
"C"				`	İ		40	
MR (Obs.)	<b> </b>		$\vdash$	P <sub>c</sub> mm	l		Sugd. 456.1	5
MR (Calc.)	55.54	10	5	PV/RT			Exp. L.1.%/wt.	
(nD-d/2)				25°C 30 mm	1.0000	5	u. Dispersion	
Dielectric				BP	0.9490	5	Flash Point *C	+
A 150 to	7.52	987	5	t <sub>e</sub>	0.9311	5	Fire Point	1
B   295 °C	2050.2		5	tc	ļ		M. Spec.	-
C	191.		5	ΔHc kcal/m ΔHf			Ultra V.	
A# 150 to	2.05	5210	5	ΔFÍ			X-Ray Dif.	
B*[ 290 °C	1770.3			Viscosity	1		Infrared	
·				centistokes	1		Solubility in * Acetone	
tk to				η •c	l		Carbon tet.	
X	<del> </del>	163	اجا				Benzene	1
A'   25 to B'   150 °C	7.85	154	5			$\downarrow$	Ether n-Heptane	
c, 1.30 0	209.		5	B <sup>V</sup> to C			Ethanol	
A1# 25 to	2, 39	9804	5				Water	
B'* 150 °C	2172.1		5	(B <sup>V</sup> )  to			Water in	
Acl to				(A <sup>V</sup> )  °C	l			
Bc tc C				c <sub>p</sub> liq. *K				
	<b> </b>		-	1				
Cryos, A° consts, B°				c <sub>p</sub> vap. *K				
t <sub>e</sub> °C	277.56	5	5	c <sub>v</sub> vap.	<u> </u>			
BEERRA	FC. 1 *	<b></b>	· ·	DI 114 4	Cala from 1	- د ه	grams/100 grams solute.	vent
	ES: 1-I	JOW.	_		Caic. from d	et. da	ta 5-Calc. by formula	
SOURCE:			Li					
PURIFICAT			Li					
LITERATU	RE REF	ERE	NCE	5: 3 Ind. Eng.	Chem., <u>36</u> ,	596 (1	944)	

NAME	2,4-di-	tert-But	ylphenol		STRUCTURAL FORMU OH C(CH3)3			
Mole % Pur.	Ref.	Molecul Formul	ar C <sub>14</sub> H <sub>22</sub> O	Molecular Weight 206.3	16	C(CH <sub>3</sub> ) <sub>3</sub>		
		Ref.			Ref		Ref	
F, P. *C	56.5	3	dt/dP			f to		
F.P. 100%			*C/mm			g   <u>*</u> K		
B. P. *C			25°C BP	1410.12 0.0560	5 5	h ,	- 1	
760 mm 1 <b>0</b> 0	263.5 191.	5	t <sub>e</sub>	0.03303	5	f' to		
30	158.0	5	30 mm	0.8344	5	g'   ' <u>*</u> K_		
10	132.4	5	AHm cal/g		$\Box$	h¹		
1	89.0		ΔHv cal/g			m   to		
Pressure mm 25°C	0.007	722 5	25°C	84.16	5	n   •K		
te	1463.8	5	30 mm BP	71.54 61.46	5 5			
Density			t_	58.74	5	m' to		
g/ml 20°C	:		(u, e)	58.62	5	$\begin{bmatrix} \mathbf{n_i} \\ \mathbf{o_i} \end{bmatrix} = -\frac{\mathbf{e_K}}{\mathbf{K}}$		
dt 25 4 30	İ		AHv/Te	21.40	5			
	<del>†</del>		d   160 to		5	Surface tension dynes/cm, 20°C	1	
Ъ			a, 300 °C		5	30		
Ref. Index			e'   25 to		5	40		
n <sub>D</sub> 20°C	; ]		d <sub>c</sub> g/ml			Parachor [P] 20°C	- 1	
30	1	<b>!</b>	l v_ mı/g			30	- 1	
"C"			, C	İ		40	1	
MR (Obs.)			P <sub>c</sub> mm	<u> </u>	$\sqcup$	Sugd. 534.1	- 5	
MR (Calc.	60.158	3   5	PV/RT 25°C	1.0000	5	Exp. L.1.%/wt.	1	
(nD-d/2)	<del> </del>		30 mm	1.0000	5	Dispersion	1	
Dielectric			BP	0.9480 0.9288	5	Flash Point °C		
A 160 to B 1400 °C		747   5	t <sub>e</sub> t <sub>c</sub>	0.7200		Fire Point		
c L	189.	5	AHc kcal/m			M Spec.	İ	
A*   160 to	2.07	361 5	ΔHf ΔFf			Ultra V. X-Ray Dif.		
B* L320 °C	1981.8	5		<del> </del>		Infrared		
C C	1		Viscosity centistokes			Solubility in +		
t <sub>k</sub>   to			7 °C			Acetone Carbon tet.	1	
Ç i °C					1	Benzene		
A'   25 to B'   60 °C		50   5				Ether n-Heptane	l	
c, C, 44	209.	5	B <sup>V</sup> to			Ethanol		
A1# 25 to			_^°C	_	1	Water		
B'* 160 °C	2233.4	5	(B <sup>V</sup> ) to	1		Water in		
Ac to			(A <sup>V</sup> )  •C	<u> </u>				
Bc t <sub>c</sub>	4		c <sub>p</sub> liq. •K					
Cryos. A			c <sub>p</sub> vap. *K					
consts. B			ll <sup>-</sup>					
t <sub>e</sub> °C	293.23	5	c <sub>v</sub> vap.				i	
						grams/100 grams sol	vent	
REFEREN	CES: 1-Do	w 2-AI	PI 3-Lit. 4-	Calc, from de	t. da	ta 5-Calc, by formula		
SOURCE:		Li						
PURIFICA'	TION:	Li	t.					
LITERATU	RE REFE	RENCES	3 Ind. Eng.	Chem., 36,	596 (1	1944)		

No. 37 4-Diisobutylphenol STRUCTURAL FORMULA NAME Molecular C14H22O Mole Ref. Molecular % Pur. Weight 206, 316 Č(CH3)2CH2C(CH3)2CH3 Ref. Ref. F.P. °C F.P. 100% 84. 3 dt/dP f to \*C/mm 25\*C ٠ĸ ١ g 5367.9 5 B. P. \*C h 0.0553 BP 760 mm 279. 0.0318 5 ſ١ te to 100 207. 5 g' <u>•к</u> 30 173.9 5 0.8388 5 30 mm 10 148.2 5 h' ∆Hm cal/g 104.1 5 to ∆Hv cal/g Pressure n ۰ĸ 92.69 25°C mm 25°C 0.0017 o 30 mm 76.52 65.79 5 1501.02 5 te 5 ВP m' to Density 62.82 te te (d, e) n' •K g/ml 20°C 62.68 5 o'  $d_4^t$ 25 AHv/T 22, 24 5 30 Surface tension 175 to 94.27 5 <u>€</u> فدد dynes/cm. 20°C 0.1021 h 30 ď٠ 25 to 95.41 5 40 Ref. Index e' •c 175 0.1086 n<sub>D</sub> 20°C Parachor [P] d<sub>c</sub> g/ml 25 20°C vc ml/g 30 30 tČ 40 "C"  $P_c$  mm 5 534.1 Sugd. MR (Obs.) PV/RT Exp. L.1.%/wt. MR (Calc.) 60,158 5 1.0000 25°C 5 (nD-d/2) 30 mm 1.0000 Dispersion Dielectric BP 0.9460 Flash Point C 0.9259 A 175 to te tc 7.68856 5 Fire Point B \_325 °C 2235.6 5 M. Spec. С 186. ΔHc kcal/m 5 Ultra V. ΔHf A\* 175 to 2.25887 5 X-Ray Dif. ΔFf B\* 325 °C 2128.0 Infrared Viscosity K Solubility in centistokes c Acetone to ٠c Carbon tet. Benzene A' 25 to 7.99920 Ether B' i\_175°C 2464.8 5 n-Heptane B<sub>v</sub> | 204. Ethanol to °C Water 25 to 2.59789 5 Water in (B<sup>V</sup>)| B'\* 175 °C 2362.6 to Acl  $(A^{\vee})$ Bc •c cp liq. ۰ĸ Сc Cryos. A. c<sub>p</sub> vap. •ĸ consts. B. te .C c, vap. 309.46 5 grams/100 grams solvent 5-Calc. by formula 2-API 3-Lit. 4-Calc, from det. data REFERENCES: 1-Dow SOURCE: Lit. Lit. **PURIFICATION:** LITERATURE REFERENCES: 3 Ind. Eng. Chem., 36, 596 (1944)

<u> </u>					<del></del>			38
NAME	2,4,6	-Trial	lylp	henol			STRUCTURAL FORM	ULA
							H2C = HCH2C CH2CH	1 = GH2
Mole	Ref.	Mole	cul		Molecular		$\cup$	
% Pur.		For	mul	r C <sub>15</sub> H <sub>18</sub> O	Weight 214.	294	ČH2 CH=	CH2
		F	lef.			Ref		Ref.
F.P. °C	<u> </u>			dt/dP	1		f   to	
F. P. 100%	<b>_</b>		_	*C/mm 25*C	15510.91	5	g <u>*K</u> _	
B. P. *C 760 mm	294.	1	3	BP	0.0559	5	h	
100	221.	İ	5	t.	0.0314	5	f' to	İ
30 10	187.4	ł	5	30 mm	0.8540	5	h'^-	
1	116.2		5	ΔHm cal/g			m to	
Pressure mm 25°C	1	.	.	ΔHv cal/g 25°C	95.04	5	n •K	
t.	0.0 <sub>3</sub>	320	5	30 mm BP	76.78 65.98	5	°	
Density			$\neg$	t	62.87	5	m' to	
g/ml 20°C				t (d, e)	62.74	5	" <del></del> -	
d <sub>4</sub> 25		1		AHv/Te	22.48	5	Surface tension	
a b			$\neg$	d 185 to		5	dynes/cm. 20°C	
Ref. Index	<del> </del>		$\dashv$	d'   25 to	97.86	5	30 40	
20°C		- 1			0.1125	5	Parachor [P]	
30				d g/ml vc ml/g	1	1	20°C	
"C"	<del>                                     </del>	-+	一	1° -C		i	40	İ
MR (Obs.)	<u>†                                     </u>	$-\dagger$	$\dashv$	P <sub>c</sub> mm	ļ	ļ	Sugd. 534.	1 5
MR (Calc.)	64.77	6	5	PV/RT 25°C	1.0000	5	Exp. L.1.%/wt. u.	
(nD-d/2) Dielectric	<del> </del>		$\dashv$	30 mm BP	1.0000	5	Dispersion	
A 185 to	7.75	543	5	t <sub>e</sub>	0.9450 0.9240	5	Flash Point *C Fire Point	
B 400 °C	2352.0		5	t <sub>c</sub>		<u> </u>	M Spec.	
C	183.		5	ΔHc kcal/m ΔHf		ĺ	Ultra V.	
A* 185 to B* 335 °C		3/1	5	ΔFÍ	1		X-Ray Dif. Infrared	ł
K	1			Viscosity			Solubility in +	
t <sub>k</sub>  to		1		rentistokes 7°C			Acetone Carbon tet.	
t <sub>x</sub> l	İ			•		1	Benzene	
A' 25 to B' 185 °C		5057	5				Ether n-Heptane	
	201.		5	B <sup>V</sup>   to		ľ	Ethanol	
A'* 25 to B'* 185 °C		062	5	<del></del>	-		Water Water in	
Ac to	+	-+	∸┤	(A <sup>V</sup> )  to	1			
Bc t C		- 1		c <sub>p</sub> liq. •K	<del></del>	+	1 1	
Cryos. A*	+	-	$\dashv$		1			1
consts, B				, P	1			
t <sub>e</sub> °C	326.05		5	c <sub>v</sub> vap.				
							† grams/100 grams so	lvent
	ES: 1-D	ow 2			Calc. from de	t. da	ta 5-Calc, by formula	
SOURCE:			Li					
PURIFICAT		<b>DD</b>	Lit		<u> </u>			
MIERATU	RE REF	eren(	CES	: 3 Ind. Eng.	Chem., 36,	596 (	1944)	
ł								
1								
I								

NAME	4, 6-di-ter	-But	yl-2-methylphe	$\dashv$	STRUCTURAL FORMU OH (CHs)3C CH3		
Mole % Pur.	Ref. Mo	lecul muli		Molecular Veight 220,3	42	(CH <sub>3</sub> ) <sub>3</sub> C CH <sub>3</sub>	
		Ref			Ref.		Ref.
F.P. °C	51.	3	dt/dP *C/mm			f to	
B. P. *C 760 mm 100 30 10	269. 197. 164.1 138.5	3 5 5 5	25°C BP t <sub>e</sub> 30 mm ΔHm cal/g	2400.9 0.0555 0.0324 0.8337	5 5 5	g  * <u>K</u> h   f'   to g'  * <u>K</u> h'	
Pressure mm 25°C te  Density g/ml 80°C	94.9 0.0041 1473.4 0.891	5 5 5	ΔHv cal/g 25°C 30 mm BP t <sub>e</sub> t <sub>e</sub> (d, e)	82.30 68.95 59.17 56.50 56.40	5 5 5 5 5	m   to n   to n'   to	
d <sup>t</sup> 120 4 160	0.862 0.833	3	ΔHv/T <sub>e</sub>	21.77	5	Surface tension	+
a b	0.939 -0.0 <sub>3</sub> 60	4	d 165 to e 300 °C d' 25 to	84.24 0.0932 84.70	5 5	dynes/cm. 20°C	
Ref. Index n <sub>D</sub> 20°C 25 30			e'   165 °C d <sub>c</sub> g/ml v <sub>c</sub> ml/g t <sub>c</sub> °C	0.0960	5	40 Parachor [P] 20°C 30	
"C"			t <sub>c</sub> °C P <sub>c</sub> mm			40 Sugd. 534.1	5
MR (Obs.) MR (Calc. (nD-d/2) Dielectric		5	PV/RT 25°C 30 mm BP	1.0000 1.0000 0.9460	5 5 5	Exp. L.1.%/wt. u. Dispersion	
A 165 to B 1350 °C	2152.4	5 5 5	te t	0.9260	5	Flash Point *C Fire Point  M. Spec.	_
C A+ 165 to B+ 310 °C K c t <sub>k</sub> to t <sub>x</sub> °C		5	AHc kcal/m AHf AFf  Viscosity centistokes  7  *C			Ultra V. X-Ray Dif. Infrared  Solubility in + Acetone Carbon tet.	
A'; 25 to B'; 165 °C C'	2378.1 206.	5 5 5	B <sup>V</sup> to A <sup>V</sup> C			Benzene Ether n-Heptane Ethanol Water	
A** 25 to B**165 °C	2275.9	5	(B <sup>V</sup> )  - to			Water in	-
Bc tc Cc			c <sub>p</sub> liq. *K				
Cryos, A° consts, B°			c <sub>p</sub> vap. *K				
te ℃	298.71	5	c <sub>v</sub> vap.	l	<u> </u>	*	
REFEREN	CES: 1-Dow	2-A	PI 3-Lit. 4-	Calc, from de	t. de	grams/100 grams solute 5-Calc. by formula	vent
SOURCE:		Li	it.	·			
PURIFICA	TION:	Li					
			S: 3 Ind. Eng.	Chem., 36, 5	96 (1	944)	

						No. 40
NAME	4, 6-di-tert	-But	yl-3-methylpher	nol		STRUCTURAL FORMULA
<u></u>	<del></del>					(CH <sub>3</sub> ) <sub>3</sub> C
Mole	Ref. Mo	lecul		Molecular		C(CH <sub>3</sub> ) <sub>3</sub>
% Pur.	F0		a 15 24   1	Weight 220.3	Ref	Re
F. P. *C	62, 1	Ref.	dt/dP	1	Kei	
F.P. 1009		_	*C/mm			f to to
B. P. °C			25°C BP	8488, 1 0, 0543	5	h
760 mm 100	282. 211.	3	t.	0.0311	5	f' to
30 10	178.2	5	30 mm	0,8325	5	g'   ' •K_
i	152.6 108.8	5	ΔHm cal/g		$\perp$	h¹ to
Pressure			ΔHv cal/g 25°C	89.77	5	m to
mm 25°C	0.0011 1506.2	5	30 mm	73.59	5	0
Density		-	BP te / ,	63.28 60.40	5 5	m¹   to
g/ml 80°C	0.912 0.882	3	t <sub>e</sub> (a, e)	60.30	5	n'   •K
dt 120 4 160	0.853	3	AHv/T <sub>e</sub>	22.74	5	Surface tension
a b	0.972 -0.0 <sub>3</sub> 75	4 4	d   180 to	91.29 0.0993	5	dynes/cm. 20°C
Ref. Index	- <del></del>		d'   25 to	92.41 0.1056	5	40
n <sub>D</sub> 20°0	7					Parachor [P] 20°C
30			d g/ml vc ml/g tc °C			30
"C"			t <sub>c</sub> *C			40 Sugd. 534.1 5
MR (Obs.) MR (Calc.		5	PV/RT		+	Exp. L.1.%/wt.
(nD-d/2)	) 64.776	]	25°C 30 mm	1.0000 1.0000	5 5	u.
Dielectric			BP	0.9451	5	Dispersion Flash Point °C
A 180 to		5	t <sub>e</sub> t <sub>c</sub>	0.9250	5	Fire Point
B 1_325 °C	2294.2 185.	5	AHc kcal/m		+-	M Spec.
A*   180 to		5	ΔHf ΔFf			Ultra V. X-Ray Dif.
B* 1320 °C	2187.4	5	Viscosity		+-	Infrared
c	_		centistokes			Solubility in + Acetone
t <sub>x</sub>   t <sub>x</sub>			η •c		1	Carbon tet.
A'   25 to		5				Benzene Ether
B' L180 'C	2527.2 203.	5	B <sup>V</sup> to	<del> </del>	+	n-Heptane Ethanol
A'* 25 to	<del></del>	5	A <sup>V</sup> i c			Water
B'* 180 °C		5	(B <sup>V</sup> ) to			Water in
Ac to			(A <sup>V</sup> )  •C		$\perp$	
Bc tc_*C	<u> </u>		c <sub>p</sub> liq. •K			
Cryos. A consts. B			c <sub>p</sub> vap. *K			
t <sub>e</sub> °C	312.05	5	c <sub>v</sub> vap.			
						grams/100 grams solvent
	CES: 1-Dow			alc. from de	t. da	ta 5-Calc. by formula
SOURCE: PURIFICA	TION	Li Li				
			S: 3 Ind. Eng.	Chem 36	596 /	1944)
			,. J ma. 2mg.	o <b></b> , <u>20</u> ,	3,0 (	-/,
L	······································					

	2 6-di	-1071	- B+	yl-4-methylphe			ampii amin i T	No. 41
NAME	2,0-d1	-tert	- But	yı-4-metnyipne	noi	-	STRUCTURAL F	ORMULA
		Ι					(CH <sub>3</sub> ) <sub>3</sub> C	(CH <sub>3</sub> ) <sub>3</sub>
Mole % Pur.	Ref.	Mol	ecul:		Molecular Veight 220,34	2	CH <sub>3</sub>	
	<del></del>		Ref.			Ref.		Ref
F. P. °C	70.		3	dt/dP			f to	
F.P. 100%	<b>}</b>			*C/mm 25*C	2091.7	5	g• <u>K</u>	
B. P. *C 760 mm	265.		3	BP	0.0546	5	h	
100 30	194.		5	t <sub>e</sub>	0.0321 0.8243	5	f' to to	
10	136.2		5	30 mm	0.0243	-	h'	
1	92.98	3	5	ΔHv cal/g		<del>                                     </del>	m to	
Pressure mm 25°C	0.00	)47	5	25°C	81.80	5	n <u>•K</u>	
t <sub>e</sub>	1462.0		5	30 mm BP	68.90 59.21	5	m¹ to	
Density g/ml 80°C	0.89	9	3	t <sub>e</sub> (d, e)	56.60 56.51	5	n' K	
dt 120 d4 160	0.87	70	3	ΔHv/T	21.99	5	0'	
-4 160 a	0.84		3	d 160 to	84.02	5	Surface tension	
b	-0.0		4	e 295 °C to	0.0936 84.17	5	dynes/cm. 20°C	
Ref. Index				e' 160 °C	0.0945	5	40	
<sup>n</sup> D 20°C				d <sub>c</sub> g/ml			Parachor [P] 20°C	
30	ļ		L	vc ml/g tc *C			30 40	
"C"				P <sub>c</sub> mm	ł		Sugd.	534.1 5
MR (Obs.) MR (Calc.)		76	5	PV/RT		1	Exp. L.1.%/wt.	
(nD-d/2)				25°C 30 mm	1.0000	5	u. Dispersion	
Dielectric			_	BP	0.9460 0.9266	5	Flash Point °C	
A 160 to B   350 °C		3222	5	te tc	0.7200	-	Fire Point	
С	189.		5	ΔHc kcal/m ΔHf			M. Spec. Ultra V.	
A* 160 to B* 305 °C	2.24	1064	5	ΔFf		İ	X-Ray Dif. Infrared	
к ———				Viscosity			Solubility in +	
				centistokes 7 80 °C	3.47	3	Acetone Carbon tet.	
t <sub>x  </sub> °C	ļ			120 160	1.540 0.920	3	Benzene	
A'   25 to B'   160 °C		4836	5			ļ.	Ether n-Heptane	
<u>c'                                    </u>	207.		5	B <sup>V</sup> to A <sup>V</sup> C			Ethanol Water	
A'* 25 to B'* 160 °C		8018	5	$\frac{1}{(\mathbf{B}^{v})^{l}} - \frac{1}{to}$	-	1	Water in	
Acl to	1		Ť	(A <sup>V</sup> )  °C				
Bc tc C	_			c <sub>p</sub> liq. °K		†	1	
Cryos. A*	+		<del>                                     </del>	\$1				
consts. B°			L	Р.		1		
t <sub>e</sub> °C	293.8	7	5	c <sub>v</sub> vap.	1	<u></u>	+ (100	
REFEREN	:ES: 1-1	Dow	2-A	PI 3-Lit. 4-	Calc. from de	et. di	grams/100 gran	
SOURCE:	1		Li					
PURIFICAT	TION:		Li	t.				
LITERATU		ERE	NCE	S: 3 Ind. Eng	Chem., 36,	596	(1944)	
					_			

No. 42 4-Diisobutyl-2-methylphenol STRUCTURAL FORMULA NAME Molecular C15H240 Molecular Weight 220, 342 Mole Ref. Č(CH3)2 CH2 C(CH3)3 % Pur. Formula Ref Ref Ref F.P. C 49.5 3 dt/dP f to °C/mm <u>•</u>K g 25°C 6973.82 B. P. \*C h BP 0.05262 275. 5 760 mm 5 ſ 0.03068 to 100 206. 5 g1 •ĸ 30 174.0 5 30 mm 0.8139 5 10 148.9 h' ∆Hm cal/g 105.9 1 to ΔHv cal/g Pressure n •ĸ 89.18 25°C mm 25°C 0.00129 30 mm 73.86 t<sub>e</sub> 1465.4 5 BP 63.01 to Density g/ml 20°C m 5 5 te te (d, e) 60.17 •ĸ n' 60.02 01 25 dt4 ΔHv/T 23.02 5 30 Surface tension 174 92.56 to •C dynes/cm. 20°C 305 0.1074 5 • Ъ 30 à٠ to 91.75 •1 40 Ref. Index 174 °C 0.1028 5  $\mathbf{n}_{\mathbf{D}}$ 20°C [P] d v t c Parachor g/ml 25 20°C ml/g \*C 30 30 40 "C" P<sub>c</sub> mm Sugd 578.1 5 MR (Obs.) PV/RT Exp. L.1.%/wt. MR (Calc.) 25°C 1.0000 5 (nD-d/2) 30 mm 1.0000 5 Dispersion Dielectric BP 0.9350 Flash Point °C 0.9144 174 to 7,89769 t. Fire Point <sup>t</sup>c B 410°C 2317.8 M Spec. C 187. AHc kcal/m Ultra V AHf A\* | 174 to 2.52399 X-Ray Dif. ΔFſ **B**\* \_315 °C 2219.8 Infrared Viscosity Solubility in centistokes Acetone to •c Carbon tet. Benzene A1 20 to 8,21783 Ether 2554.7 B' ∟174 °C n-Heptane B<sup>V</sup> | C' 205. 5 Ethanol to A1# •c 20 to Water 2.84385 5 B'\* 174 °C Water in 2451.7 (BV) to Ac to °C •c Bc cp liq. ۰ĸ Cc Cryos. A\* c<sub>p</sub> vap. •K consts. B° c, vap. f" .C 302,84 5 grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: Lit. PURIFICATION: Lit. LITERATURE REFERENCES: 3 Ind. and Eng. Chem. 36, no. 7, 596-597 (1944)

NAME	4-D	iisobut	y1-3-	methylphenol	$\Box$	STRUCTURAL FORMULA			
Mole % Pur.	Re	of. Mo	lecul		Molecular Weight 220,34	12		H3  3)2 CH2 C(CH3)3	
			Ref.		1	Ref.		Ref	
D. D. 46	40	•	3						
F.P. °C F.P. 100%	49.	•	13	dt/dP *C/mm		1	f to		
	+		┼	25°C	6975.3	5	8 <u>*K</u>		
B. P. *C 760 mm	275.		3	BP	0.05263	5	h		
100	206.		5	t <sub>e</sub>	0.03036	5	f' to		
30	174.		5	30 mm	0.8140	5	g' <u>K</u>	l l	
10 1	148.		5	ΔHm cal/g		I	h'		
	105.	7	13	AHv cal/g			m   to		
Pressure mm 25°C	١ ,	00129	5	25°C	89.18	5	n <u>*K</u>	ł	
t <sub>e</sub>	1484.		5	30 mm	73.86	5			
Density	+		<del> </del>	BP	63.68 60.88	5	m¹ to		
g/ml 80°C	: o .	904	3	te te (d, e)	60.81	5	n'   L _ <u>*K</u>		
dt 120	0.	876	3	ΔHv/T <sub>e</sub>	23.26	5	0,		
<b>4</b> 160	↓ <u>°</u> .	847	3	d 175 to	91,40	5	Surface tension		
a	1		1	e   300 °C		5	dynes/cm. 20°C	j	
ь	<del></del>		1	di 725 to	91.75	5	8 30 40	1	
Ref. Index				e'   175 °C	0.1028	5			
<sup>n</sup> D 20°C	'			d <sub>c</sub> g/ml			Parachor [P] 20°C		
30	1		1	v <sub>c</sub> ml/g			30		
"C"	1			•			40		
MR (Obs.)	<del>                                     </del>		┼	P <sub>c</sub> mm			J	534.1 5	
MR (Calc.		776	5	PV/RT		ا ـ	Exp. L.1.%/wt.	l	
(nD-d/2)	1		1	25°C 30 mm	1.0000	5	u. Dispersion	İ	
Dielectric				BP	0.9450	5	Flash Point *C		
A 175 to	7.	89759	5	i.	0.9254	5	Fire Point	1	
B 1315 °C			5	с	<u> </u>		M. Spec.		
С	187.		5	ΔHc kcal/m ΔHf		1	Ultra V.	1	
A*1 175 to		50338	5	ΔFf			X-Ray Dif.		
B*[310 °C	- 2212.	*	"	Viscosity			Infrared		
c			1	centistokes		1	Solubility in *		
t <sub>k</sub>			1	<b>່າ</b> 80 °C	5.00	3	Acetone Carbon tet.		
<u>                                      </u>			<u> </u>	120	1.970	3	Benzene	i	
A'   25 to		21772	5	160	1.125	3	Ether		
B'   175 °C	2554. 205.		5	BV 110 *0	1036.	4	n-Heptane Ethanol	1	
	+		+	B <sup>V</sup>   110 to A <sup>V</sup>   170 °C	3. 6597	4	Water	ł	
A'* 25 to B'*175 °C		84374	5	(B <sup>V</sup> )  to	-1		Water in		
Acl to			†	(A <sup>V</sup> )  °C		1			
Bc tc C			1		<del>                                     </del>	+	1	1	
Cc				c <sub>p</sub> liq. *K		1			
Cryos. A.				c <sub>p</sub> vap. *K		1			
consts. B	<del></del>		₩.	1		]			
t <sub>e</sub> °C	303.	44	5	c <sub>v</sub> vap.		1	1		
REFEREN	CES: 1	-Dow	2- 4	PI 3-13+ 4-	Calc from de	t de	grams/100 gramata 5-Calc. by form		
SOURCE:				t.	u				
	TION			it.					
PURIFICA' LITERATU		error			. Chem., 36,	504	(1944)		
					. ••, <u>20</u> ,	3,0	(-//		

No. 44 STRUCTURAL FORMULA NAME 2-Diisobutyl-4-methylphenol OH C(CH3)2CH2C(CH3)2CH3 Molecular C 15H24O Molecular Weight 220.342 Ref. Mole ČH3 % Pur Ref Ref Ref. F.P. C F.P. 100% 46.2 3 dt/dP f °C/mm <u>•</u>K g 25°C 2884.7 B. P. °C h 0.05453 BP 760 mm 5 269. 3 f 0.03188 5 to 100 198.0 5 g' •K 30 165.4 5 30 mm 0.8262 5 10 140.0 5 h! AHm cal/g 96.70 1 5 to ΔHv cal/g Pressure •ĸ n 25°C 83.64 mm 25°C 0.00332 30 mm 70.00 5 te 1470.8 5 5 BP 60.11 m to Density 57.43 57.33 5 te te (d, e) •ĸ g/ml 80°C 'n 0.904 0 dt 120 4 160 0.876 ΔHv/Te 3 5 22.14 0.847 3 Surface tension 1 165 85.78 to dynes/cm. 20°C <u>•</u>c 0.0954 300 5 h 30 25 to 86.07 1 40 •' Ref. Index 165 •c 0.0972 20°C [P] n<sub>D</sub> Parachor d<sub>c</sub> g/ml 25 v ml/g 20°C 30 30 40 "C" P<sub>c</sub> mm Sugd. 534.1 5 MR (Obs.) PV/RT Exp. L. 1. %/wt. MR (Calc.) 64.776 5 25°C 1.0000 5 (nD-d/2) 1.0000 30 mm 5 Dispersion Dielectric BP 0.9451 5 Flash Point °C  $\mathbf{t_e}$ 0.9253 A 165 to 7.66944 Fire Point tc B 1400 °C 2188.4 M Spec. Ultra V. С 188. 5 AHc kcal/m ΔHf A\* 165 to 2,2774 X-Ray Dif. ΔFf B\* 310 °C 2083.0 Infrared ĸ Viscosity Solubility in c centistokes Acetone to 80 °C 5,70 Carbon tet •c 2.130 120 3 Benzene A' 25 to 160 1.158 3 7,9848 Ether B١ <u> 165 °C</u> 2417.0 n-Heptane B<sup>V</sup> | 110 to 1127. 3. 4622 C' Ethanol 206. A | 170 °C Water A1# A'\* 25 to B'\* 165 °C 2.6153 5 (BV) Water in 2314.6 to Acl to (AV) °C Bc •c cp liq. ۰ĸ Cc Cryos. A. c<sub>p</sub> vap. •ĸ consts. B° c, vap. te °C 298, 11 5 grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: Lit. PURIFICATION: Lit. LITERATURE REFERENCES: 3 Ind. Eng. Chem., 36, 596 (1944)

NAME	4, 6-di-ter	t-But	yl-2, 3-dimethy	lphenol		STRUCTURAL FORMU	$\neg \neg$
Mole % Pur.	Ref. Mo	lecul:		Molecular Weight 234, 3	68	(CH <sub>3</sub> ) <sub>3</sub> C CH <sub>3</sub> CH <sub>3</sub> C(CH <sub>3</sub> ) <sub>3</sub>	
		Ref			Ref.	T The state of the	Ref.
	05.5	-		<del> </del>			1
F.P. *C F.P. 100%	85.5	3	dt/dP			f	1 1
	<del></del>	$\vdash$	*C/mm 25*C	9972.56	5	g '° <u>K</u>	1 1
B. P. *C	304	١. ١	BP	0.05428	5	h	$\perp$
760 mm 100	284. 213.	3	t <sub>e</sub>	0.0309	5	f' to	1 1
30	180.2	5	30 mm	0.8337	5	g' ' <u>*K</u>	1 1
10	154.5	5		1	+	h'	1 1
1	110.6	5	ΔHm cal/g			m to	+ -
Pressure			ΔHv cal/g	05.15	ا ۔ ا	n eK	1 1
mm 25°C	0.0389	5	25°C 30 mm	85.15 69.69	5	• !	1 1
t <sub>e</sub>	1510.3	5	BP	59.88	5	<del></del>	+-
Density			t_	57.16	5	m' to	1 1
g/ml 20°C	:		t (d, e)	57.03	5	n'   <u>*K</u>	1 1
d <sup>t</sup> 25	1		AHV/T	22.81	5		$\perp$
	<b></b>	1	d 180 to		5	Surface tension	
•			e   315 °C		5	dynes/cm. 20°C	
ь		1	d 25 to		5	¥ 30	1 1
Ref. Index			e'   180 °C		5	40	+
<sup>n</sup> D 20°C	;		d <sub>c</sub> g/ml			Parachor [P]	1 1
30	1		vc ml/g		1	20°C	
"C"	+	╁╌┤	v <sub>c</sub> ml/g t <sub>c</sub> °C		1	40	1 1
		1	P <sub>c</sub> mm		1	Sugd. 612.1	5
MR (Obs.)			PV/RT	<del>+</del>	<del> </del>	Exp. L.1.%/wt.	
MR (Calc. (nD-d/2)	7		25°C	1.0000	5	u.	
<u> </u>	<del>-</del>	₩	30 mm	1.0000	5	Dispersion	
Dielectric			BP	0.9440	5	Flash Point °C	
A 180 to	7,81831	5	t t c	0.9242	5	Fire Point	
B ∟330 ℃	2315.7 185.	5			<u> </u>	M. Spec.	
С	<del></del>	+	ΔHc kcal/m ΔHf			Ultra V.	
A# 180 to		5	ΔFf			X-Ray Dif.	1
B*[ 325 °C	2209.3	ן י	Viscosity		+	Infrared	
c			centistokes		1	Solubility in +	
t <sub>k</sub> to	-		η •c			Acetone	1
و اید	:		<b>'</b>		1	Carbon tet. Benzene	ŀ
A1   25 to	8.13087	5			1	Ether	- 1
B' 180 °C		5	F	<del></del>	+	n-Heptane	1
С'	203.	5	B <sup>V</sup>		1	Ethanol	-
A'* 25 to		5		_		Water Water in	- 1
B'* 180 °C	2447.2	5	(B <sup>V</sup> )  to	1		Water in	
Acl to			(A <sup>V</sup> )  °C	1			
Bc tc °C	<u>-</u>		c <sub>p</sub> liq. °K			1	
Cc —		—	41 -	1		1	
Cryos. A		1	c <sub>p</sub> vap. *K	1	1		
consts. B	<b></b>	<u> </u>	ji -	1	1		
t <sub>e</sub> °C	314.15	5	c <sub>v</sub> vap.	1	1	1	
						†grams/100 grams solv	ent
REFEREN	CES: 1-Dow	2-A	PI 3-Lit. 4.	-Calc. from de	et. da	ata 5-Calc. by formula	
SOURCE:		Li					
				···			
PURIFICA		Li					
LITERATU	IRE REFERE	:NCE	S: 3 Ind. Eng	. Chem., <u>36</u> ,	596	(19 <b>44</b> )	

						No. 40	
NAME	4,6-di-t	ert-But	yl-2-ethylpheno	ol .		STRUCTURAL FORMUL	.A
LL						(CH3)3 C C2 H5	
Mole	Ref. 1	dologui		Molecular		$\bigcup$	
% Pur.	Ker.	Formul		Weight 234.3	68	Č(CH <sub>3</sub> ) <sub>3</sub>	
		Ref.			Ref		Ref.
F. P. *C	30.	3	dt/dP			f to	
F.P. 100%			*C/mm 25*C	3858.05	5	8 K	
B. P. *C 760 mm	275.	3	BP	0.05533	5	h	-
100 30	203.0 170.0	5	t <sub>e</sub> 30 mm	0.03204	5	f' to g' '*K	
10	144.3	5	ΔHm cal/g	0.8307	-	h'	
1	100.4	5	ΔHv cal/g	<del></del>	┼	m   to	
Pressure mm 25°C	0.0024	15 5	25°C	79.82	5	n •K	
t <sub>e</sub>	1489.4	5	30 mm BP	66.33 56.92	5	<del> </del>	+
Density g/ml 20°C			te te (d, e)	54.35 54.22	5	m' to	
at 25			ΔHv/Te	22.02	5	0'	
<del></del>	<del> </del>		d   170 to	81.55	5	Surface tension	
a b				0.0895	5	dynes/cm. 20°C	
Ref. Index			e' 170 °C		5	40	↓_
25			d g/ml vc ml/g tc °C			Parachor [P] 20°C	
30	ļ	-	tc C			30 40	
"C"	<b></b>		P <sub>c</sub> mm			Sugd. 612.1	5
MR (Obs.) MR (Calc.)			PV/RT 25°C	1,0000	5	Exp. L.1.%/wt.	T
(nD-d/2)		+	30 mm	1.0000	5	u. Dispersion	
Dielectric A 170 to	7 (5)		BP t <sub>e</sub>	0.9451 0.9256	5	Flash Point °C	1
B _420 °C		36   4	t <sub>c</sub>			Fire Point	┼
C	187.	5	ΔHc kcal/m ΔHf			M Spec. Ultra V.	
A* 170 to B* 320 °C	2.2819	52   5	ΔFf		_	X-Ray Dif. Infrared	
K			Viscosity centistokes			Solubility in +	+
t <sub>e  </sub> _ to	1		7 °C			Acetone Carbon tet.	
t C A' 20 to	7, 9637	,,				Benzene	
B' _170 °C	2432.1	5	<u> </u>	<b>_</b>	_	Ether n-Heptane	
C'	205.	5	B <sup>V</sup> to A <sup>V</sup> C			Ethanol Water	
A'* 25 to B'* 170 °C	2.6186	55   5	$\frac{1}{(\mathbf{B}^{\mathbf{V}})} - \frac{0}{t_0}$	•		Water in	
Ac  to			(A <sup>V</sup> ) •C				
Bc t <sub>c</sub> C	-		cp liq. °K			1	
Cryos, A° consts, B°			c <sub>p</sub> vap. °K				
t <sub>e</sub> °C	305.14	5	c <sub>v</sub> vap.				1
						grams/100 grams solve	nt
	ES: 1-Dow			Calc. from de	t. da	ta 5-Calc, by formula	
SOURCE:		Li	<del></del>				
PURIFICAT		Li					
LITERATUI	RE REFER	ENCES	: 3 Ind. Eng.	Chem., 36,	596 (	1944)	
L							

NAME	4,6-d	i-ter	t-But	yl-3-ethylpheno	ol		STRUCTURAL FO	RMULA
	<del></del>	T					(CH <sub>3</sub> ) <sub>3</sub> C	
Mole % Pur.	Ref	. Mo	lecula rmula		Molecular Veight 234.36	68	C(CH <sub>3</sub>	
			Ref			Ref.		Re
F. P. °C	80.5		3	dt/dP			f to	
F.P. 100%	<u> </u>		Ш	°C/mm	1,5247.02	_	g•K	
B. P. *C	200			25°C BP	15347.82 0.05420	5	h	
760 mm 100	289.		3	t <sub>e</sub>	0.03063		f' to	
30	185.1		5	30 mm	0.8361	5	g' <u>*K</u>	
10 1	159.4		5	ΔHm cal/g			h'	
Pressure	1			ΔHv cal/g			m to	
mm 25°C		356	5	25°C 30 mm	87.41 71.00	5		
t <sub>e</sub>	1524.		5	BP	61.05	5	m' to	
Density g/ml 20°C				t <sub>e</sub> (d, e)	58. 26 58. 13	5	n' K	
at 25				-	1	5	o'	
<b>4</b> 30	<u> </u>			d 185 to	23.04		Surface tension	
a				d   185 to e   325 °C	88.73 0.09579	5	dynes/cm. 20°C	
<u> </u>			<b>├</b> ─┤	d' 20 to	89.98	5	30 40	
Ref. Index				e' 185 °C	0.1025	5	Parachor [P]	
D 25				d <sub>c</sub> g/ml			20°C	
30	ļ		Ш	vc ml/g tc °C			30	
"C"			Ш	P <sub>c</sub> mm	1	1	40 Sugd. 6	12.1 5
MR (Obs.) MR (Calc.)		104	5	PV/RT		$\vdash$	Exp. L.1.%/wt.	
(nD-d/2)	05.5	10-1		25°C	1.0000	5	u.	Ì
Dielectric				30 mm BP	1.0000 0.9440	5	Dispersion	
A 185 to	7.8	6793	4	t <sub>e</sub>	0.9241	5	Flash Point *C Fire Point	
B   450 °C	2358.9	)	4 5	t <sup>c</sup>		<b>!</b>	M. Spec.	
A* 185 to		9180	5	ΔHc kcal/m ΔHf			Ultra V.	
B*  330 °C	2251.9		5	ΔFf			X-Ray Dif. Infrared	
к — — —				Viscosity		1	Solubility in +	
	-			centistokes 7°C			Acetone	
د الآيا °C				7			Carbon tet. Benzene	
A'   20 to	8, 1	7959	5			1	Ether	
B' i_185 °C	2594.6	•	5	B <sup>v</sup> to	<u> </u>	$t^{-}$	n-Heptane Ethanol	
A1# 20 to	+	2882	5	B <sup>v</sup> to A <sup>v</sup> *C			Water	
B'+ 185 °C			5	(B <sup>V</sup> )  to			Water in	
Ac to				(A <sup>V</sup> )  °C	[			
Bc tc C	-			c <sub>p</sub> liq. °K		1	1	
Cryos, A*	<del> </del>		$\vdash$	l				
consts. B°			Ш	р.				
t <sub>e</sub> °C	319.5	0	5	c <sub>v</sub> vap.	L		+ (100	
REFERENC	ES: 1-	Dow	2-A1	PI 3-Lit. 4-	Calc. from de	t. da	grams/100 grams	
SOURCE:			Li					
PURIFICAT	ION:		Li					
		ERF		3: 3 Ind. Eng.	Chem. 36 6	96 (	1944)	
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<del></del>						No. 48	
NAME	2,6-di-tert	-But	yl-4-ethylpheno	1		STRUCTURAL FORMULA	
						(CH <sub>3</sub> ) <sub>3</sub> C	
Mole % Pur.	Ref. Mo	lecul		Molecular Weight 234.3	68	C <sub>2</sub> H <sub>5</sub>	
7.741.	1 1 1 1	Ref	10 20	weight 254.5	Ref		Ref.
F. P. *C	44.0	3	dt/dP			f   to	
F.P. 100%			°C/mm	2501 0	_	g LK	
B. P. *C 760 mm	272.	3	25°C BP	2501.8 0.05632	5	h	
100	199.0	5	t <sub>e</sub>	0.03286	5	fi to	
30 10	165.7 139.9	5	30 mm	0.8424	5	g'  K_	
1	95.9	5	ΔHm cal/g		-	m to	
Pressure mm 25°C	0.00391	5	25°C	77.00	5	n ' •K	
t <sub>e</sub>	1481.2	5	30 mm BP	64.63 55.30	5	ļ <del>-</del>	
Density g/ml 20°C				52.75	5	m'   to   r'   'K	
at 25	}		t <sub>e</sub> (d, e) ΔHv/T <sub>e</sub>	52.63	5	o'	
	<u> </u>		d   165 to	79.18	5	Surface tension	
b				0.0878	5	dynes/cm. 20°C	
Ref. Index			d'   25 to e'   165 °C	79.19 0.0879	5	40	
n <sub>D</sub> 20°C	1	1	d_g/ml			Parachor [P] 20°C	
30			vc ml/g tc °C			30	
"C"			P <sub>c</sub> mm			40 Sugd. 612.1	5
MR (Obs.) MR (Calc.)			PV/RT			Exp. L.1.%/wt.	
(nD-d/2)			25°C 30 mm	1.0000	5	u. Dispersion	ı
Dielectric			BP	0.9450 0.9248	5	Flash Point °C	
A 165 to B 400 °C	7.53824 2137.8	5	te tc	0.7248		Fire Point	
c	187.	5	AHc kcal/m			M Spec. Ultra V.	
A* 165 to	2.17079	5	ΔHf ΔFf			X-Ray Dif.	
B* ∟320 °C	2032.0	,	Viscosity			Infrared Solubility in +	
t <sub>k</sub>	·		centistokes 7°C			Acetone	
t <sub>x</sub> l			1			Carbon tet. Benzene	
A'   25 to B' _165 °C	7.88193 2387.1	5				Ether n-Heptane	
c, C. = =	207.	5	B <sup>V</sup> to			Ethanol	
A <sup>1</sup> * 25 to B <sup>1</sup> * 165 °C	2.53776 2284.0	5	$\frac{A^{V}}{(B^{V})} - \frac{{}^{t}C}{to}$			Water Water in	İ
Aci to	2204.0	-	(A <sup>V</sup> )  to				
Bc t C			c <sub>p</sub> liq. •K		+		
Cryos. A°	<u> </u>	-	c <sub>p</sub> vap. °K				
consts, B°		ļ	c <sub>v</sub> vap.				
t <sub>e</sub> °C	302.46	5	Jr.	l	<u> </u>	+ (100	
REFERENC	ES: 1-Dow	2 - A1	PI 3-Lit. 4-0	alc, from de	t. da	grams/100 grams solvent ta 5-Calc, by formula	
SOURCE:		Li					
PURIFICAT	ION:	Li	it.				
LITERATU	RE REFERE	NCE	S: 3 Ind. Eng.	Chem., 36,	596 (	1944)	
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NAME	2,6-	di-ter	t-Am	yl-4-methylphe		No. 49 STRUCTURAL FORMULA			
		1					(CH <sub>3</sub> ) <sub>3</sub> CH <sub>2</sub> C	3)3	
Mole % Pur.	Re	f. Mo	lecula rmula		Molecular Weight 248,39	94	CH <sub>3</sub>		
			Ref			Ref.	J. Company	Ref.	
F.P. °C F.P. 100%				dt/dP °C/mm			f to g - K		
B. P. *C 760 mm	283.		3	25°C BP	6170.7 0.05611	5	h	-	
100 30	210. 176.	5	3 5	t <sub>e</sub> 30 mm	0.03215 0.8483	5	g' to		
10 1	150. 106.		5 5	ΔHm cal/g			h' to		
Pressure mm 25°C	0.	00149	5	ΔHv cal/g 25°C	77.46	5	n   •K		
t <sub>e</sub> Density	1509.		5	30 mm BP	63.58 54.43 51.87	5 5	m¹ to	+-	
g/m1 80°C	; o. ·	931	3	t <sub>e</sub> (d, e)	51.75	5	n' •K		
<sup>a</sup> 4 30	ļ		$\sqcup$	d 175 to	78,75	5	Surface tension	+	
a b	-			e 315 °C to	0.08595 79.75	5	dynes/cm. 20°C 30 40		
Ref. Index		4950	3	e'   175 °C	0.09157	5	Parachor [P]	+	
30				vc ml/g tc °C			20°C		
MR (Obs.)			$\vdash$	P <sub>c</sub> mm		<u> </u>	40 Sugd. 651.1	5	
MR (Calc. (nD-d/2)		872	5	PV/RT 25°C	1.0000	5	Exp. L.1.%/wt.		
Dielectric				30 mm BP	1.0000 0.9440 0.9236	5 5	Dispersion Flash Point *C	+-	
A 175 to B 420 °C	_ 2230.	64684 5	4	te tc	0.7230	Ľ	Fire Point M. Spec.	-	
A* 175 to	185.	29872	5	ΔHc kcal/m ΔHf ΔFf			Ultra V. X-Ray Dif.		
B*[325 °C	2123.	7	5	Viscosity	<del> </del>	$\vdash$	Infrared Solubility in +		
t <sub>k</sub>				centistokes 7 °C			Acetone Carbon tet.		
t   °C   A'   25 to	7.	95403	5				Benzene Ether		
B' 175 °C	2458. 203.	1	5	B <sup>v</sup> to C			n-Heptane Ethanol		
A'* 25 to B'* 175 °C		63281 2	5	$\frac{A'}{(B') } - \frac{{}^{\circ}C}{to}$	-		Water Water in		
Ac to				(A <sup>V</sup> )  °C		<u> </u>			
Cc -	<b>-</b>			c <sub>p</sub> liq. °K					
Cryos, A consts, B				c <sub>p</sub> vap. *K c <sub>u</sub> vap.					
t <sub>e</sub> °C	314.	21	5	~ ·-p.	L	<u></u>	grams/100 grams solv	ent	
REFEREN	CES: 1	-Dow			Calc. from de	et. da	ata 5-Calc. by formula		
SOURCE:	TION.		Li Li						
LITERATU		FERE		S: 3 Ind. Eng.	Chem., 36, 5	596 (	1944)		
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			<del></del>			No. 50					
NAME	2,4,6-tri-	tert-	Butylphenol	_	STRUCTURAL FORMULA						
			Т.			(CH <sub>3</sub> ) <sub>3</sub> C C(CH <sub>3</sub> ) <sub>3</sub>					
Mole % Pur.	Ref. Mo	rmul	$^{\text{ar}}_{\text{a}} C_{18} H_{30} O$	Molecular Weight 262.4	20	C(CH <sub>3</sub> ) <sub>3</sub>					
		Ref.			Ref	Re					
F, P. *C	131.	3	dt/dP			f   to					
F.P. 100%			*C/mm 25*C	4965.56	5	g   <u>*K</u>					
B. P. *C 760 mm	278.	3	BP	0.05529	5	h					
100	206.	5	t <sub>e</sub>	0.03225	5	f' to g'*K					
30 10	172.9 147.2	5	30 mm	0.8382	5	n					
1	103.2	5	ΔHm cal/g		$\vdash$	m to					
Pressure mm 25°C	0.00187	5	ΔHv cal/g 25°C	72.55	5	n   •K					
t <sub>e</sub>	1474.96	5	30 mm BP	59.94 50.78	5	0					
Density			t.	48.37	5	m' to to					
g/ml 20°C				48.20	5	0, 1 = 1					
d <sub>4</sub> 25 30			ΔHv/T <sub>e</sub>	21.85 75.01	5	Surface tension					
a b			310_ °C	0.0872	5	dynes/cm. 20°C					
Ref. Index	<u> </u>	<del>                                     </del>	d' 25 to	74.68 0.0853	5	40					
n <sub>D</sub> 20°C	;		d g/ml v ml/g		1	Parachor [P]					
30						30					
"C"			tc *C P <sub>c</sub> mm			40 Sugd. 690.1 5					
MR (Obs.) MR (Calc.			PV/RT		$\vdash$	Exp. L.1.%/wt.					
(nD-d/2)	<b>'</b>	1	25°C 30 mm	1.0000 1.0000	5	u.					
Dielectric	Ī		BP	0.9450	5	Dispersion Flash Point °C					
A 170 to		4	t <sub>e</sub> t <sub>c</sub>	0.9127	5	Fire Point					
B <u>1420</u> °C	2 2225.1 186.	4 5	ΔHc kcal/m	<u> </u>	1	M Spec.					
A*   170 to		5	ΔHf ΔFf			Ultra V. X-Ray Dif.					
B* 1320 °C	2126.6	5	Viscosity		$\vdash$	Infrared					
:	_	ì	centistokes			Solubility in + Acetone					
tk   to		1	η •c			Carbon tet. Benzene					
A'   25 to		5				Ether					
B' 170 °C	2453.9	5	B <sup>V</sup> l to			n-Heptane Ethanol					
A1# 25 to	2.6910	5	A <sup>V</sup> I *C			Water					
B'* 170 °C	+	5	(B <sup>V</sup> ) to			Water in					
Ac to			(A <sup>V</sup> ) •C								
Ce		<u> </u>	c <sub>p</sub> liq. •K								
Cryos. As consts. B			c <sub>p</sub> vap. •K								
t <sub>e</sub> °C	307.64	5	c <sub>v</sub> vap.		<u></u>	100					
REFEREN	CES: 1-Dow	2 - A1	PI 3-Lit 4-0	alc from de	t de	grams/100 grams solvent ta 5-Calc. by formula					
SOURCE:			it.	46		- 5 Care, by torman					
PURIFICATION: Lit.											
LITERATURE REFERENCES: 3 Ind. Eng. Chem., 36, 596 (1944)											
<u> </u>											

NAME	p-tert-Oct	ylphe	nol		STRUCTURAL FORMULA						
	p-(1,1,3,3	-Tet	ramethylbutyl) [		$\sim$						
Mole % Pur. 99	. 76 Ref. Mo.	lecul mula		Molecular Weight 206,3	16	C(CH <sub>3</sub> ) <sub>2</sub> (	CH2C(CH3)3				
		Ref.			Ref.		Ref.				
F.P. °C F.P. 100°	85.02	1	dt/dP °C/mm 25°C	4201.5	5	f to					
B. P. °C 760 mm 100 30 10	290. 45 212. 20 176. 87 149. 62	1 1 4 4	BP t <sub>e</sub> 30 mm ΔHm cal/g	0.6079 0.0347 0.8910	5 5	f'   to g'   °K					
Pressure mm 25°C t <sub>e</sub>	0.00228 1532.4	5 5	ΔHv cal/g 25°C 30 mm BP	89.26 72.99 62.13	5 5 5	m   to n - K					
Density g/ml 20° dt 25 4 30	С		t <sub>e</sub> (d, e)  ΔHv/T <sub>e</sub>	59.02 58.80 20.35	5 5	n' _ *K					
a b Ref. Inde			d 175 to e 325 °C d 25 to e' 175 °C	89.91 0.9564 91.94 0.1071	5 5 5	dynes/cm. 20°C 30 40					
<sup>n</sup> D 20° 25 30	c		d g/ml vc ml/g tc °C			Parachor [P] 20°C 30 40					
"C"	,	<u> </u>	P <sub>c</sub> mm				8.4 5				
MR (Obs. MR (Calc (nD-d/2)	.)		PV/RT 25°C 30 mm	1.0000 1.0000	5	Exp. L.1.%/wt. u. Dispersion					
Dielectric  A 175 to  B   440 °c	7.34058 2115.9	1 1	BP t e t c	0.9430 0.9204	5	Flash Point °C Fire Point M. Spec.					
A* 175 to B*  335 °		1 5 5	ΔHc kcal/m ΔHf ΔFf			Ultra V. X-Ray Dif. Infrared					
	C		Viscosity centistokes 7°C			Solubility in + Acetone Carbon tet. Benzene					
A'   25 to B'   175 ° C' A'* 25 to	2332.3 202.	5 5 5	B <sup>V</sup> to		-	Ether n-Heptane Ethanol Water					
B'* 175 °	C 2231.1	5	(B <sup>V</sup> )  to (A <sup>V</sup> )  °C			Water in					
Bc tc		ļ 	c <sub>p</sub> liq. *K								
Cryos. A consts. B			c <sub>p</sub> vap. *K								
t <sub>e</sub> °C	325.23	5	c <sub>v</sub> vap.			grams/100 grams	solvent				
REFEREN	ICES: 1-Dow	2-A	PI 3-Lit. 4-	Calc. from d	et. da	ata 5-Calc. by formul					
SOURCE:		Do									
PURIFICATION: Distillation											
LITERAT	URE REFERE	NCE	5:								

No. 52 NAME o-Chlorophenol STRUCTURAL FORMULA Ref. Molecular C6H5C10 Molecular Mole % Pur. 99.82 Weight 128.557 Ref Ref Ref. F.P. °C F.P. 100% 9.00 dt/dP f to \*C/mm g °K 25°C 9.6406 B. P. \*C h BP 0.0522 5 760 mm 174.90 1 f 0.03583 100 to 108.50 4 g' °K 30 79.0 4 30 mm 0.7400 10 56.4 5 h' ∆Hm cal/g 25.102 4 18,5 5 to ΔHv cal/g m Pressure •ĸ n 25°C 91.56 mm 25°C 1,5573 5 o 30 mm 5 86.37 1225.5 5 t<sub>e</sub> BP 74.46 5 to Density g/ml 20°C m ١ te te (d, e) 72.09 5 •K 'n 1.2634 1 71.98 5 0 25  $\mathbf{d_4^t}$ 1.2577 AHV/T 5 30 19.80 1.2518 4 Surface tension 96.19 Т 5 80 to 41.22 dynes/cm. 20°C 1 195 •c 0.1243 5 h 30 39.89 1 ď to 93.96 5 1 40 38.58 1 Ref. Index e' 0.0960 80 •c n<sub>D</sub> 20°C 1.55939 Parachor [P] d<sub>c</sub> g/ml 25 1.55676 v ml/g tc °C 20°C 257.8 30 1.54437 30 258.1 4 40 "C" 258.3 4 0.5783 4 P<sub>c</sub> mm Sugd. 259.3 5 MR (Obs.) MR (Calc.) 32.87 4 PV/RT Exp. L. 1. %/wt. 32.699 25°C 1.0000 5 u. (nD-d/2) 0.92766 5 30 mm 1.0000 5 Dispersion Dielectric 5.997 ı BP 0.9551 5 Flash Point °C t<sub>e</sub> 0.9411 80 to 7.05272 5 Fire Point tç 1589.1 В L300 °C M Spec. Ultra V C 206. 5 AHc kcal/m ΔHf A\*| 80 to 1.48398 5 X-Ray Dif. ΔFf B+ 205 °C 1493.3 Infrared ĸ Viscosity Solubility in c centistokes Acetone t<sub>x</sub> to 20 °C 3,0696 Carbon tet. •c 1.7818 40 Benzene 60 1.1882 20 to 7,42442 1 Ether 1808.0 80 0,8709 B١ 80 °C 5 n-Heptane c٠ 225 5 В 30 to 860.15 Ethanol ÃV I 90 °C 3.50455 Water 2.25 1 A'\* 20 to 1.85717 5 Water in 80 °C (BV) B'\* 1706.3 to Ac | to (AV) °C Bc **•**C cp liq. ۰ĸ Cc Cryos. A\* 0.0206 ı c<sub>p</sub> vap. ۰ĸ consts. B\* c<sub>v</sub> vap. te °C 194.84 5 grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: Dow PURIFICATION: Distillation LITERATURE REFERENCES:

No. 1 Benzenethiol NAME STRUCTURAL FORMULA Thiophenol Mole Ref. Molecular Molecular C6H6S % Pur. Formula Weight 110,174 Ref. Ref. Ref. -14.8 2 F.P. °C F.P. 100% dt/dP to °C/mm ١ °K g 25°C 5.4681 5 B. P. \*C h BP 0.0550 760 mm 168.7 2 0.0384 5 f to 100 99.5 69.33 5 g' 30 30 mm 0.7538 5 10 46.4 5 h' ∆Hm cal/g 1 8,4 m to ∆Hv cal/g Pressure n ۰ĸ 25°C 98.38 2.9814 mm 25°C o 30 mm 93.58 te 1209.93 5 BP 80.20 m' Density to 5 77 61 te te (d, e) •K n' g/ml 20°C 1.0766 5 77.44 o' 1.0724  $d_4^t$ AHv/Te 18.49 5 30 1.0682 4 Surface tension 70 102.92 to 5 1.0934 dynes/cm. 20°C 40.46 190 °C 0.1347 -0.0384 ь 30 39.21 37.99 5 25 70 to 101.08 5 40 e' | Ref. Index °C 0.1082 20°C 1.5893 [P] nD Parachor d<sub>c</sub> g/ml 25 1.5864 2 20°C vc ml/g tc °C 30 1.5844 4 30 40 "C" 0.7125 4  $P_c$  mm Sugd 258.1 5 MR (Obs.) 34.50 2 PV/RT 34.807≠ Exp. L.1.%/wt. MR (Calc.) 25°C 1.0000 5 (nD-d/2) 1.0510 2 30 mm 1.0000 Dispersion 216. 2 Dielectric BP 0.9550 Flash Point C 0.9405 A 70 to 6.78419 5 Fire Point B | 205 °C 1466.5 M. Spec. С AHc kcal/m 207. 5 Ultra V. ΔHí A\* 70 to X-Ray Dif. 1.15400 ΔFf B\* 200 °C 1371.81 Infrared ĸ Viscosity Viscos., centistokes °C Solubility in Acetone to Carbon tet. °C t<sub>x</sub> | Benzene 25 to 7.11854 5 Ether 7<u>0 °C</u> 1657.1 B<sub>v</sub> | n-Heptane 224. to Ethanol °C Water 25 to 1.49236 Water in 70 °C (B<sup>V</sup>)| B'\* 1557,6 to Acl (A<sup>V</sup>)| °C to  $Bc_{\parallel}$ ٠c cp liq. ۰ĸ Cc Cryos. A\* cp vap. ۰ĸ consts. B° c<sub>v</sub> vap. te °C 189.20 5 # S = 8.5grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula API SOURCE: API **PURIFICATION:** LITERATURE REFERENCES:

No. 2 STRUCTURAL FORMULA NAME 2-Methylbenzenethiol o-Methylthiophenol Molecular C7H8S Molecular Mole Ref. Weight 124,200 Formula % Pur Ref Ref. F.P. C F.P. 100% 15. 2 dt/dP f to °C/mm •ĸ g 25°C 16.98 0.0568 B. P. \*C h BP 760 mm 194.2 2 0.0379 5 ſ 100 to 122.5 5 g' °K 30 91.02 5 30 mm 0.7870 5 67.1 10 h١ ∆Hm cal/g 27, 2 to ΔHv cal/g m Pressure •ĸ n 25°C 97.03 mm 25°C 0.8634 o 30 mm 89.89 5 1278.6 5 t<sub>e</sub> ВP 76.80 5 Density g/ml 20°C to m te te (d, e) 73.98 5 •ĸ 'n 1.041 2 73.78 5 ۰,  $d_4^t$ 25 ΔHv/T 1.037 2 5 30 18.71 1.033 4 Surface tension 90 100.14 to 1.0570 -0.0<sub>3</sub>80 b dynes/cm. 20°C 38.45 <u>•c</u> 5 220 0.1269 4 30 37.28 5 to 99.73 25 1 40 36.14 e¹ Ref. Index •c 90 0.1081 20°C  $\mathbf{n}_{\mathbf{D}}$ 1.570 2 Parachor [P] d<sub>c</sub> g/ml 25 1.568 20°C v<sub>c</sub> t<sub>c</sub> ml/g 4 30 1.565 30 40 "C" 0.7143 4 Pç mm Sugd 297.1 5 MR (Obs.) 39.1 2 PV/RT Exp. L.1. %/wt. 39.425≠ MR (Calc.) (nD-d/2) 25°C 1.0000 5 1.050 2 30 mm 1.0000 5 Dispersion Dielectric 0.9520 BP 5 Flash Point °C 0.9356 90 to 6.86693 1579.3 Fire Point t<sub>c</sub> <u> 235 °C</u> M Spec. 5 C 202. AHc kcal/m Ultra V ΔHſ A\* | 90 to B\* 230 °C 1.27077 X-Ray Dif. ΔFf 1481.43 Infrared Viscosity Solubility in centistokes Acetone tō Carbon tet. •c Benzene A' I 25 to 7, 20649 Ether 1784.6 <u>90 °C</u> 5 B' n-Heptane B<sup>V</sup> | C' 220 to Ethanol •c 1.62142 Water 25 to 5 90 °C 1684.0 (BV) Water in B1# to (AV) Ac to °C Bc •c сp liq. ۰ĸ Сc Cryos. A. c<sub>p</sub> vap. •K consts. B\* t .C c, vap. 218,01 5 4 S = 8.5grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula API SOURCE: PURIFICATION: API LITERATURE REFERENCES:

No. 3 3-Methylbenzenethiol NAME STRUCTURAL FORMULA m-Methylthiophenol Molecular C7H8S Mole Ref. Molecular % Pur. Weight 124, 200 Ref Ref. F. P. °C dt/dP f to F.P. 100% °C/mm 25°C °K g 17.64 B. P. \*C h BP 0.05688 5 760 mm 195.1 2 f 0.03802 5 t<sub>e</sub> to 100 123.3 g' <u>•к</u> 91.75 5 30 30 mm 0.7885 5 10 67.8 5 h' ∆Hm cal/g 1 27.8 5 m to AHv cal/g Pressure n •K 25°C 97.30 5 mm 25°C 0.8290 30 mm 90.09 5 te 1277.38 5 BP 76.80 5 m' to Density te (d, e) 73.97 5 'n •ĸ g/ml 20°C 1.044 2 73.74 5 ١٥ 1.040 25 2  $d_{4}^{t}$ ΔHv/T<sub>e</sub> 18.67 5 30 1.036 4 Surface tension 90 to 101.88 5 a 1.060 -0.0<sub>3</sub>80 dynes/cm. 20°C 38.90 220 °C 0.1285 5 Ъ 30 37.72 5 ď to 99.997 25 40 36.57 e¹ Ref. Index •c 90 0.1080 1.572 <sup>n</sup>D 20°C 2 Parachor [P] d<sub>c</sub> g/ml 1.569 25 2 20°C vc ml/g 30 1.567 4 30 <sup>t</sup>c 40 "C" 0.7146 4  $P_c$  mm Sugd. 297. 1 5 MR (Obs.) 39.2 2 PV/RT Exp. L. 1. %/wt. MR (Calc.) 39.425≠ 1.0000 25°C 5 u. (nD-d/2) 1.050 2 1.0000 30 mm Dispersion Dielectric BP 0.9498 5 Flash Point °C te tc 0.9330 A 90 to 6.87023 5 Fire Point B | 235 °C 1584.2 M. Spec. C AHc kcal/m 202. 5 Ultra V. ΔHf A\* 90 to 1.27717 5 X-Ray Dif. ΔFf B\*[ 230 °C 1487.25 Infrared ĸ Viscosity Solubility in centistokes Acetone ·c to Carbon tet. •c <u>ئي</u> ا Benzene A'I 25 to 7.21000 5 Ether 1790.10 B١ 90 °C n-Heptane B<sup>V</sup> | Ċ١ 5 221. to Ethanol •c Water A1\* 25 to 1.62433 Water in B'+ 90 °C (BV) 1689.3 to Acl (A<sup>V</sup>)| °C Bc •c c<sub>p</sub> liq. ۰ĸ Cc Cryos. A. cp vap. •ĸ consts. B° c vap. te °C 218.89 5 #S = 8.5grams/100 grams solvent 2-API 3-Lit. 4-Calc, from det. data 5-Calc. by formula REFERENCES: 1-Dow SOURCE: API **PURIFICATION:** API LITERATURE REFERENCES:

No. 4 STRUCTURAL FORMULA NAME 4-Methylbenzenethiol p-Methylthiophenol Molecular C7H8S Molecular Mole Ref. Weight 124, 200 Formula % Pur Ref. Ref. F, P. 44 2 dt/dP f to F.P. 100% °C/mm g <u>•</u>K 25°C 17.50 B. P. °C h 0. 05 686 BP 5 760 mm 194.9 2 0.03814 5 ſ١ to 100 ١. 123.1 5 <u>•</u>K g' 0.7881 30 91.59 5 30 mm 5 10 67.6 5 h' ∆Hm cal/g 27.6 to m ∆Hv cal/g Pressure •K 25°C 97.24 n 5 mm 25°C 0.836 a 30 mm 90.05 5 1271.5 t<sub>e</sub> BP 76.50 5 m' to Density g/ml 20°C 73.65 5 te (d, e) n' •ĸ 5 73.78 01 25 d4 AHv/T 18.60 5 30 Surface tension 90 101.79 ď to 5 dynes/cm. 20°C 220 25 <u>•c</u> 0.1282 5 ь 30 to 99.94 40 Ref. Index •c 0.1081 e' 90 20°C [P]  $\mathbf{n}_{\mathbf{D}}$ d g/ml vc ml/g tc °C Parachor 25 20°C 30 30 40 "C" P<sub>c</sub> mm Sugd. 297.1 5 MR (Obs.) PV/RT Exp. L.1.%/wt. MR (Calc.) 39.425<sup>#</sup> 5 25°C 1.0000 5 (nD-d/2)u. 30 mm 1.0000 Dispersion Dielectric BP 0.9466 5 Flash Point °C 90 to t<sub>e</sub> 0.9296 5 6.86972 Fire Point tç 1583,2 L235 °C M Spec. Ultra V. C 202. 5 AHc kcal/m ΔHf A\* | 90 to B\* | 230 °C 1.28237 5 X-Ray Dif. ΔFf 1487.9 Infrared ĸ Viscosity Solubility in c centistokes Acetone t<sub>x</sub> | to Carbon tet. •c Benzene 25 to 7.20945 Ether B١ 90 °C 1789.0 n-Heptane Вv 221. to Ethanol ÃV I AI\* •c Water 25 to 1.62391 Water in B'\* 90 °C 1688.2 (B<sup>V</sup>) to Ac  $(A^{V})_{1}$ •c Bc cp liq. •ĸ Cc Cryos. A\* c<sub>p</sub> vap. •ĸ consts. B° c, vap. t° .C 218.46 5 # S = 8.5 grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API **PURIFICATION:** API LITERATURE REFERENCES:

No. 5 2-Ethylbenzenethiol NAME STRUCTURAL FORMULA o-Ethylthiophenol CzHs Molecular C8H10S Mole Ref. Molecular % Pur. Formula Weight 138,226 Ref. Ref. F.P. °C F.P. 100% dt/dP f to °C/mm ۰ĸ g 25°C 34.90 B. P. \*C h BP 0.05799 5 760 mm 210. ſ١ 0.0385 5 to 100 137. g' •<u>к</u> 30 104.28 5 30 mm 0.8092 5 5 10 80. h' ∆Hm cal/g 1 39. 5 m to ΔHv cal/g Pressure n <u>•K</u> 25°C 92.42 mm 25°C 0.3963 o 30 mm 84.39 5 1287.78 te 5 ВP 70.6 5 m' to Density t<sub>e</sub> t<sub>e</sub> (d, e) 67.74 5 •ĸ n' g/ml 20°C 1.0349 2 67.39 5 ٥' 1.0309  $d_4^t$ 2 ΔHv/T<sub>e</sub> 5 18.44 30 1.0269 4 Surface tension d 105 to 97.99 5 1.0509 -0.0<sub>3</sub>80 dynes/cm. 20°C a b 40.10 1 235 °C to 0.1304 5 30 38.87 5 94.95 5 37.67 40 Ref. Index e' | 105 •c 0.1012 n<sub>D</sub> 20°C 1.5700 [P] 2 Parachor dc g/ml vc ml/g t °C 25 20°C 1.5680 2 30 1.5653 30 t<sub>c</sub> 40 "C" 0.7185 4 P<sub>c</sub> mm 5 Sugd 336,1 MR (Obs.) 43.82 PV/RT 44.043<sup>‡</sup> Exp. L.1.%/wt. MR (Calc.) 25°C 1.0000 (nD-d/2)1.0525 2 1.0000 30 mm Dispersion Dielectric BP 0.9309 5 Flash Point C 0.9114 A 105 to 6.92105 Fire Point 1656.5 B 1\_250 °C ΔHc kcal/m M. Spec. C 200. Ultra V. A\* 105 to ΔHf 1.39456 X-Ray Dif. ΔFf B\* 245 °C 1566.6 Infrared Viscosity Solubility in centistokes Acetone ţ<sub>k</sub> ſ to Carbon tet. °C ŧΞi Benzene 25 to ΑΊ 7, 26402 Ether B' 105 °C 1871.79 n-Heptane B<sup>V</sup> 219. to Ethanol •c Water A1# 25 to 1.71747 (B<sup>V</sup>) Water in B'# 105 °C 1769,80 to (A<sup>V</sup>)| °C Bc tc •c c<sub>p</sub> liq. ۰ĸ Cc Cryos. A. c<sub>p</sub> vap. ٠ĸ consts. B° c<sub>v</sub> vap. te °C 5 234.64 grams/100 grams solvent #S = 8.5REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det. data 5-Calc. by formula API SOURCE: API **PURIFICATION:** LITERATURE REFERENCES:

							No. 6	
NAME	3-Ethylbe	nzen	ethiol			STRUCTURAL I	FORMULA	١.
	m-Ethylt	hioph	enol			Å		
Mole % Pur.	Ref. Mo	lecul rmul		Molecular Weight 138,22	.6	<u> </u>	C2 H5	
		Ref.			Ref			Ref.
F.P. °C F.P. 100%	1		dt/dP *C/mm 25*C	37, 38	5	f   to		
B. P. °C 760 mm 100 30 10	211. 138. 105.33	2 5 5	BP t <sub>e</sub> 30 mm	0.05795 0.03854 0.8089	5 5	h g'   to g'  K_		
Pressure mm 25°C	0.3668	5	ΔHm cal/g ΔHv cal/g 25°C 30 mm	93.24 84.89	5	m   to		
Density g/ml 20°C	1283.01 1.038 1.034	2 2	BP te te(d,e)	70.6 67.70 67.30	5 5 5	m'   to		
dt 25 4 30	1.030 1.0540 -0.0 <sub>3</sub> 80	4 4	ΔHv/T <sub>e</sub> d   105 to e   235 °C	18.40 99.13 0.1352	5 5 5	Surface tension dynes/cm. 20°C	40.58 39.34	5
Ref. Index n <sub>D</sub> 20°C 25 30		2 2 4	d'   25 to e'   105 °C d g/ml v ml/g t c °C	95.84 0.1039	5	40 Parachor [P] 20°C 30	38, 13	5
"C"	0.7187	4	-			40 Sugd.	336.1	5
MR (Obs.) MR (Calc. (nD-d/2) Dielectric		2 5 2	P <sub>c</sub> mm PV/RT 25°C 30 mm BP	1.0000 1.0000 0.9264	5 5 5	Exp. L.1.%/wt. u. Dispersion	330.1	,
A 105 to B (250 °C	1657.6	5 5 5	te tc AHc kcal/m	0.9066	5	Flash Point °C Fire Point  M Spec. Ultra V.		
A* 105 to B* 245 °C K	1.40506	5	ΔHf ΔFf Viscosity centistokes			X-Ray Dif. Infrared Solubility in +		
t <sub>k</sub> to t <sub>x</sub> 00	7, 26693	5	η •c			Acetone Carbon tet. Benzene Ether		
B' 105 °C	1.72091	5	B <sup>V</sup>   to			n-Heptane Ethanol Water Water in		
Ac   to Bc   tc Cc		5	(B <sup>V</sup> )  to (A <sup>V</sup> )  °C c <sub>p</sub> liq. °K					
Cryos. A° consts, B°			c <sub>p</sub> vap. *K					
t <sub>e</sub> °C # S = 8.5	235.43	5	c <sub>v</sub> vap.			grams/100 gran	ns solven	<u> </u>
REFEREN	CES: 1-Dow	2-AI	PI 3-Lit. 4-C	alc, from det	. da	ta 5-Calc. by for		
SOURCE:		A1	PI					
PURIFICA	FION: RE REFERE		PI					
LI DENTO	nd alteal	HO EX	•					

NAME	4-E	hylber	nzen	ethiol			STRUCTURAL	No. 7	<b>.</b>			
		hylthi				$\neg$	SH					
Mole % Pur.	Ref.	Mole Form	cul		Molecular Weight 138,22	26	Czi	15				
		1	Ref.			Ref.			Ref.			
F. P. *C				dt/dP			f to					
F.P. 1009				•C/mm			8 <u>*K</u>					
B. P. *C				25°C BP	37. 38 0. 05795	5	h					
760 mm	211. 138.		2 5	te	0.03854	5	f' to					
30	105.3	3	5	30 mm	0.8089	5	g' <u>*K</u>					
10 1	81. 40.		5	ΔHm cal/g			h'		-			
Pressure	10.		<b>-</b>	ΔHv cal/g			m to		1			
mm 25°C	0.30	668	5	25°C 30 mm	93.24 84.89	5	, <u>-</u> -					
t <sub>e</sub>	1283.0	1	5	BP	70.6	5	m¹ to		$\vdash$			
Density g/ml 20°0		.	2	t <sub>e</sub> (d, e)	67.70	5	n' K					
at 25	1.0		2	ΔHv/T <sub>e</sub>	67. 30	1	o'					
4 30	1.0	30	4		18.40	5	Surface tension					
a b	1.0		4 4	e_1_235 °C	99.13 0.1352	5	dynes/cm. 20°C	40.58	5			
Ref. Index	-0.0	300	-	d' 25 to	95.84	5	30 40	39.34 38.13	5			
n <sub>D</sub> 20°C		72	2		0.1039	5	Parachor [P]					
25 30	1.50		2 4	d <sub>c</sub> g/ml v <sub>c</sub> ml/g	İ	ł	20°C					
"C"			<del>-</del>	t <sub>c</sub> *C	<u> </u>	1	30 40		1			
MR (Obs.)	43.8	101	2	P <sub>c</sub> mm			Sugd.	336.1	5			
MR (Calc.		35#	5	PV/RT 25°C	1 0000		Exp. L.1.%/wt.					
(nD-d/2)	1.0	53	2	30 mm	1.0000	5	u. Dispersion		1			
Dielectric		2379	5	BP t	0.92 <b>64</b> 0.9066	5	Flash Point *C Fire Point					
B 250 °C			5	te tc ΔHc kcal/m	!	-	M. Spec.		+			
A* 105 to		0506	5	ΔHf ΔFf		İ	Ultra V. X-Ray Dif.	<u> </u>				
B* 245 °C	1570.4	'	5	Viscosity		$\vdash$	Infrared Solubility in		+-			
t <sub>k</sub>				rentistokes 7°C			Acetone Carbon tet.					
k   °C		6693	5		İ		Benzene Ether	l	Ì			
B' 105 °C	1873.04		5	PV		-	n-Heptane					
C'	218.		5	B <sup>V</sup> to C	1	l	Ethanol Water		ł			
A'* 25 to B'* 105 °C		2091	5	(BV) = 10	-		Water in	L	$\perp$			
Ac to				(A <sup>V</sup> )  °C								
Bc tc C	<u>:</u>	-		c liq. *K			1					
Cryos. Acconsts, B				c <sub>p</sub> vap. *K				İ				
t <sub>e</sub> °C	235.4	$\overline{}$	5	c vap.				1				
# S = 8.5	233.4	<u>. i</u>		<u> </u>	1	Ц	grams/100 gra	ms solve	nt			
	CES: 1-1	Dow 7	2-A	PI 3-Lit. 4-	Calc. from de	et. da	ata 5-Calc. by for					
SOURCE:				PI								
PURIFICA	TION:		Α	.PI								
LITERATU	IRE REF	EREN	CES	5:								
L												

	-,	imethyll	STRUCTURAL FORMULA				
	2,4-D	imethyl	thiophenol			SH CH <sub>3</sub>	
Mole % Pur.	Ref.	Molecul	аг С <sub>8</sub> н <sub>10</sub> s	Molecular Weight 138.22	26	CH <sub>3</sub>	
	<del></del>	Ref	<u> </u>		Ref		Re
F. P. °C	T		dt/dP	T	$\Box$	f to	
F.P. 1009			°C/mm	1		g <u>*K</u> _	
B. P. °C			25°C BP	32.01 0.05781	5	h	1
760 mm 100	208. 135.	2 5	t <sub>e</sub>	0.03834	5	f' to	
30	102.27	5	30 mm	0.8059	5	g'	
10 1	78. 37.	5 5	ΔHm cal/g			h'	
Pressure	+	+	ΔHv cal/g			m to	
mm 25°C	0.434		25°C 30 mm	91.88 84.00	5		
t <sub>e</sub>	1288, 13	5	BP	70.8	5	m' to	
Density g/ml 20°0	:		te te (d, e)	67.68 67.72	5	n'  •K_	
at 25			ΔHv/T <sub>e</sub>	18.50	5	0'	
	<del> </del>		d   100 to	<del></del>	5	Surface tension	
a b			_e_l 235_ •C	0.1254	5	dynes/cm. 20°C	1
Ref. Index			d'   25 to		5	40	
n <sub>D</sub> 20°0			<del></del>	0.1014		Parachor [P]	
25 30			d g/ml vc ml/g	İ		20°C	
"C"	+	$\dashv$	1c 1C			40	
MR (Obs.	<del></del>	. —	P <sub>c</sub> mm			Sugd. 330	6.1 5
MR (Calc.		<b>#</b>   5	PV/RT 25°C	1.0000	5	Exp. L.1.%/wt.	ł
(nD-d/2)	<del></del>		30 mm	1.0000	5	Dispersion	
Dielectric	<del></del>		BP t <sub>e</sub>	0.9344 0.9154	5	Flash Point °C	
A 100 t		90   5   5	tc	",,,,,,,,		Fire Point	
<u>c</u>	200.	5	∆Hc kcal/m			M Spec. Ultra V.	-
A*   100 to		06   5	ΔHf ΔFf			X-Ray Dif.	- 1
B* L245 °C	1554.3	"	Viscosity		<b>-</b>	Infrared	
t	_		centistokes	.1		Solubility in + Acetone	
tk   t0			7 ℃	` <b>`</b>		Carbon tet.	
A'   25 to					į	Benzene Ether	- 1
B' 100 '	219.	5	B <sup>V</sup>   to	+	-	n-Heptane	
A1# 25 to	<del></del>		B' to			Ethanol Water	1
B'+ 100 °		5	(B <sup>V</sup> ) to	-		Water in	
Ac  to		1	(A <sup>V</sup> )	i			
Bctc_*	<u>=</u>		c <sub>p</sub> liq. •K	<del></del>	<b>†</b>		
Cryos. A				1			
consts, B			c <sub>p</sub> vap. °K				
t <sub>e</sub> °C	232.58	5	c <sub>v</sub> vap.				
# S = 8.5						grams/100 grams	solvent
REFEREN	CES: 1-Do	w 2-AF	PI 3-Lit. 4-	Calc, from det	t. da	ta 5-Calc, by formula	
SOURCE:		AF	·I				
PURIFICA	TION:	AF	)I				
LITERATU	RE REFE	RENCES	<b>3</b> :				

No. 9 2,5-Dimethylbenzenethiol NAME STRUCTURAL FORMULA 2,5-Dimethylthiophenol CH<sub>3</sub> Molecular C8H10S Mole Ref. Molecular % Pur. Weight 138, 226 Ref. Ref. F.P. °C F.P. 100% dt/dP f to °C/mm ١ ۰ĸ g 25°C 28.14 B. P. \*C h 0.05753 BP 760 mm 205. 2 ſ١ 0.03803 5 to 100 132. 5 g' •<u>к</u> 30 100.24 30 mm 0.8010 5 10 76. 5 h' AHm cal/g 35. m to ∆Hv cal/g Pressure n <u>•K</u> 25°C 91.08 mm 25°C 0.4988 o 30 mm 83.43 70.9 5 te 1294.15 BP 5 m' | to Density 67.84 5 t<sub>e</sub> (d, e) •ĸ n' g/ml 20°C 67.95 5 ٥' 25  $\mathbf{d_{4}^{t}}$ ΔHv/T<sub>e</sub> 5 18.65 30 Surface tension 100 to 95.43 5 dynes/cm. 20°C a b 230 °C 25 to 0.1196 5 30 93.63 40 Ref. Index 100 °C 0.1017 n<sub>D</sub> 20°C [P] Parachor d g/ml vc ml/g t °C 25 20°C 30 30 <sup>t</sup>c 40 "C" P<sub>c</sub> mm Sugd 5 336.1 MR (Obs.) PV/RT Exp. L.1.%/wt. 44.085<sup>#</sup> MR (Calc.) 25°C 1.0000 (nD-d/2) u. 30 mm Dispersion 1.0000 Dielectric BP 0.9430 5 Flash Point C A 100 to 0.9249 6.90353 Fire Point B | 245 °C 1629.2 M. Spec. AHc kcal/m . 200. Ultra V. A\* 100 to ΔHf 1.36040 X-Ray Dif. ΔFf B\* 240 °C 1534.2 Infrared Viscosity Solubility in centistokes Acetone to Carbon tet. •c ٩ Benzene 25 to A' | 7.24539 Ether B' 100 °C 1840.9 n-Heptane B<sup>V</sup> | 219. to Ethanol •c Water A1# 25 to 1.70209 Water in (B<sup>V</sup>) B'# 100 °C 1739.8 to (A<sup>V</sup>)| °C BcL t<sub>c</sub>\_ •c c<sub>p</sub> liq. ۰ĸ Cc Cryos. Aº ۰ĸ c<sub>p</sub> vap. consts. B° c<sub>v</sub> vap. te °C 229.69 5 # S = 8.5grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula API SOURCE: API PURIFICATION: LITERATURE REFERENCES:

## TABLE X. AROMATIC AMINES

No. 1 Aniline STRUCTURAL FORMULA NAME NHg Molecular C6H7N Mole Ref. Molecular % Pur. 99.86 1 Weight 93, 116 Ref. Ref. Ref. -6.30 1 F.P. \*C F.P. 100% dt/dP f to 99.86 1 \*C/mm 25\*C •<u>K</u> g 20.29 B. P. \*C 0. 05022 h BP 4 760 mm 184.13 5 0.0340 ſ١ t, to 100 119.60 4 g' •<u>к</u> 30 0.7298 90.62 5 30 mm 5 10 68, 29 h' ∆Hm cal/g 30.55 to ΔHv cal/g Pressure n ٠ĸ 25°C 139.32 mm 25°C 0.67142 o 30 mm 129.02 5 te 5 1244.8 ВP 110.80 5 m' to Density 107.16 te te (d, e) •K n' g/m1 20°C 1.02173 5 1 106.93 o١ 25 1.01750  $d_4^t$ 1 AHV/T 20.91 5 30 1.01327 Surface tension 90 to 146, 67 1.03865 -0.03846 205 °C 20 to 90 °C dynes/cm. 20°C 45.50 0.1948 4 ь 30 44.02 5 ď٦ 143.24 5 42.56 5 40 e¹ Ref. Index 0.1570 5 1.58628 20°C Parachor [P] nD d<sub>c</sub> g/ml 0.314 5 25 1.58364 20°C vc ml/g tc °C 3.187 5 50 1.57068 5 30 426. 3 "C" 40 0.7634 4 236.70 5  $P_c$  mm 39820. 3 Sugd MR (Obs.) 30,562 4 PV/RT Exp. L.1.%/wt. MR (Calc.) 30.617 25°C 1.0000 5 (nD-d/2)1.07459 30 mm 1.0000 Dispersion Dielectric 0.9524 0.9374 BP Flash Point C A 90 to te tc 7.24179 4 Fire Point 0.26 5 B 1\_250 °C 1675.3 M. Spec. С 200. AHc kcal/m Ultra V. Yes 1 ΔHf A+ 90 to 1.53517 X-Ray Dif. ΔFf B\* 230 °C 1582.3 Infrared Yes 1 Viscosity ĸ Solubility in centistokes c Acetone to ℃ œ Carbon tet. œ Benzene œ A'I 7.63851 15 to 5 Ether œ 1913.8 B' 9<u>0 °C</u> 5 n-Heptane 00 B<sup>V</sup> I C١ 220. to Ethanol œ •c 3.65 A'+ Water 1 20 to 1.92924 5 Water in 5.28 1 (B<sup>V</sup>) B'# 90 °C 1813.6 to Acl 250 to (A<sup>V</sup>)| 7.75568 4 °C Bc tc C 2140.4 cp liq. ۰ĸ Cc 258.8 Cryos. A\* c<sub>p</sub> vap. •ĸ consts. B° c, vap. te °C 204.00 5 grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det. data 5-Calc. by formula SOURCE: Dow **PURIFICATION:** Distillation LITERATURE REFERENCES: 3 ICT

No. 2 STRUCTURAL FORMULA o-Toluidine NAME CHS Molecular C7H9N Molecular Mole Ref. % Pur. 99.8 Formula Weight 107, 150 Ref. Ref. F, P. \*C -23.68 1 dt/dP f to F.P. 100% °C/mm -14,73 1 g •K 25°C 41.11 B. P. °C h 0.05201 BP 5 760 mm 200.23 4 0.03417 5 ſ <sup>t</sup>e to 100 133.41 4 g' \_°K 30 103.33 4 30 mm 0.7580 5 10 80,14 h' ∆Hm cal/g 16.81 4 40.95 5 to AHv cal/g m Pressure °K n 25°C 126,55 5 mm 25°C 0.31703 5 o 30 mm 115.62 5 1287.0 t<sub>e</sub> ВP 5 99.47 m to 1 Density g/ml 20°C 96.08 5 te te (d, e) n' •ĸ 0.99843 0.99430 5 95.82 01 25 dt4 1 AHV/T 5 21.74 30 0.99017 4 Surface tension ī 100 132,86 5 to 1.01495 dynes/cm. 20°C 43.55 5 1 225 •c 0.1667 5 -0.0383 4 30 42.13 5 ď 25 to 100 °C 130.04 ı 40 40.71 5 0.1395 Ref. Index e١ 5 20°C 1.57246 [P] Parachor n<sub>D</sub> d<sub>c</sub> g/ml 1.56987 25 1 20°C ml/g fc C 30 1.56731 4 30 40 "C" 0.7477 4 P<sub>c</sub> mm Sugd. 275.7 5 MR (Obs.) 35, 279 4 PV/RT Exp. L. 1. %/wt. MR (Calc.) 35, 235 5 1.0000 25°C 5 u. (nD-d/2) 1.07325 4 30 mm 1.0000 5 Dispersion Dielectric BP 0.9500 5 Flash Point °C t<sub>e</sub> 0.9337 7.28896 A 103 to Fire Point 1768.7 t<sub>c</sub> В L320 °C M Spec. С 201. 5 AHc kcal/m Ultra V ΔHf A\* 103 to 1.63008 5 X-Ray Dif. ΔFf B\* 235 °C 1671.9 1 Infrared ĸ Viscosity Solubility in c centistokes Acetone to 20 °C t<sub>x</sub> 4.4335 1 Carbon tet. •c 40 2.5028 ı Benzene 60 1.6420 1 A' | 20 to 7,63271 Ether 80 1 1751 1 B' (103 °C 1984.1 n-Heptane 908. 2. 50092 C 219. 5 В 40 to Ethanol œ ÃV I 90 °C A'\* 20 to B'\* 103 °C 1.97647 Water Water in (BV) 1882.4 to Acl to (AV) °C Bc •c cp liq. ۰ĸ Cc Cryos. A\* 0.01492 1 cp vap. •ĸ consts. B° c, vap. te C 222,2 5 grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: Dow SSR 135 - 415 PURIFICATION: Distillation LITERATURE REFERENCES:

NAME	m-Toluidii	ie .				STRUCTURAL		LA	
	m-Amino i	neth	ylbenzene			NH2	!		
Mole % Pur. 99	Ref. Mo	lecul muli		Molecular Weight 107.15	0	СНЗ			
		Ref.			Ref.			Ref.	
F, P, *C	-30.40	1	dt/dP			f to			
F.P. 100	%		*C/mm		_	g   '° <u>K</u>			
B. P. *C			25°C BP	46.95 0.05246	5	h			
760 mm	203.35 135.98	5	te	0.03425	5	f' to			
30	105.67	5	30 mm	0.7633	5	g' <u>*K</u>			
10	82.33 42.89	5	ΔHm cal/g	15.79	4	h¹			
Pressure	42.07	-	ΔHv cal/g			m   to			
mm 25°C	0.2749	5	25°C	127.77	5	n   <u>*K</u>			
t <sub>e</sub>	1297.72	5	30 mm BP	116.25	5	<u> </u>		+	
Density			l t_	96.59	5	m¹ to			
g/ml 20°	0.98890 0.98485	1	t <sub>e</sub> (d, e)	96.29	5	",			
d <sub>4</sub> 25	0.98080	4	ΔHv/T <sub>e</sub>	20.74	5	Surface Associate		+-	
a	1.00510	4	d 100 to	133.80	5	Surface tension dynes/cm, 20°C	37.90	1	
ь	-0.03810	4		0.1661	5	<b>8</b> 30	37.04	1	
Ref. Inde		١,	e'   100 °C	0.1428	5	40	36.09	1	
<sup>n</sup> D 20°	C 1.56811 1.56570	1	d <sub>c</sub> g/ml			Parachor [P] 20°C	268.8	4	
50	1.55361	1	v <sub>c</sub> ml/g t <sub>c</sub> °C			30	269.5	4	
"C"	0.7497	4	P <sub>c</sub> mm			40 Sugd.	270.0 275.7	4 5	
MR (Obs.		4	PV/RT		-	Exp. L.1.%/wt.		╅	
MR (Calc (nD-d/2)	.) 35, 235 1, 06866	5 4	25°C	1.0000	5	u.			
Dielectric		1	30 mm BP	1.0000 0.9500	5	Dispersion			
A 105 to	7, 27435	4	1 t	0.9346	5	Flash Point *C Fire Point			
B 1 320 C	C_1772.06 200.	4	tc ΔHc kcal/m			M. Spec. Ultra V.			
A* 105 to		5	ΔHf ΔFf			X-Ray Dif. Infrared			
K			Viscosity centistokes			Solubility in +		+	
t <sub>k</sub> -t			7 20°C	3.9060	1	Acetone Carbon tet.	••		
ويرا	·		40 60	2.2142 1.4838	1 1	Benzene	e0 e0		
A'   20 to B'   105 °		5	80	1.0798	i	Ether	<b>∞</b>		
C. 1-103	218.	5	B <sub>v</sub> 40 to	862.5	4	n-Heptane Ethanol	e0 e0		
A'+ 20 to	1.95909	5	_A`   90 °C	3.5914	4	Water		İ	
B'* 105 *	C 1885.5	5	(B <sup>V</sup> )  to			Water in		+-	
Acl to	<u> </u>		(A <sup>V</sup> )  °C	L	1				
Bc tc	<u>~</u>	ļ	c <sub>p</sub> liq. *K	1					
Cryos, A		1	c <sub>p</sub> vap. *K						
t <sub>e</sub> °C	225, 86	5	c <sub>v</sub> vap.				1	1	
						grams/100 gra	ms solve	nt	
REFEREN	ICES: 1-Dow	2-A	PI 3-Lit. 4-	Calc. from de	t. da	ta 5-Calc, by for	mula		
SOURCE:		D	ow.						
PURIFICA	TION:	D	istillation						
LITERAT	URE REFERE	NCE	S:						
L									

No. 4 STRUCTURAL FORMULA NAME p-Toluidine NH<sub>2</sub> p-Amino methylbenzene Molecular C7H9N Mole Molecular Weight 107, 150 ČH3 Formula % Pur Ref Ref Ref. 32 F.P. C F.P. 100% 43.7 dt/dP f to °C/mm g •ĸ 25°C 39.24 5 B. P. °C h 0.05250 BP 760 mm 200.55 31 0.03459 5 f 100 to 133.2 4 g' °K 30 102.9 5 30 mm 0.7620 5 10 79.63 h' ∆Hm cal/g 40.27 5 to m AHv cal/g Pressure n °K 125.34 25°C mm 25°C 0.3353 114.78 o 30 mm 5 1283.7 5 te BP 98.74 5 to m' ١ 95, 01 5 Density te (d, e) •ĸ g/ml 50 °C n' 0.9619 5 95.11 0 70 0.9444 ΔHv/Te  $d_4^t$ 20,53 5 90 0.9276 3 Surface tension 103 131.69 5 1.0156 -0.0<sub>3</sub>875 a b dynes/cm. 50°C 34.88  $\frac{230}{20}$ <u>•</u>c 0.1643 70 32.80 30.89 3 ă۰ to 128.73 90 3 e¹ Ref. Index 0.1355 103 °C 25°C 1.56357  $\mathbf{n}_{\mathbf{D}}$ [P] dc g/ml vc ml/g tc °C Parachor 45 1.55397 50**°C** 270.8 50 1.55348 4 70 271.3 4 90 272.4 4 "C" 0.7423 4 P<sub>c</sub> mm Sugd. 275.7 5 MR (Obs.) 35.20≠ PV/RT Exp. L.1.%/wt. 35.235 MR (Calc.) 1.0000 25°C 5 (nD-d/2) 1.06587 4 30 mm 1.0000 5 Dispersion Dielectric BP 0.9465 Flash Point °C 0.9305 103 to 7.25137 t<sub>e</sub> Fire Point 1755.0 \_330 °C M Spec. C 201. 5 AHc kcal/m ΔHf A\* | 103 to 1.5971 X-Ray Dif. **AFf** B+ L240 °C 1659.6 Infrared Viscosity Solubility in c centistokes Acetone to Carbon tet. ·c Benzene 20 to 7.61234 Ether 1981.3 B١ <u>103 ℃</u> n-Heptane B<sup>V</sup> | 5 C١ 220 to Ethanol •c 20 to 1.9551 1878.9 Water 5 B'\* 103 °C Water in (BV) to Acl to (AV)1 °C •c Bc cp liq. ۰ĸ Cc Cryos. A. c<sub>p</sub> vap. ٠ĸ consts. B. te C 222.6 c, vap. 5 ≠ 45°C grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det. data 5-Calc. by formula SOURCE: Lit. PURIFICATION: Lit. LITERATURE REFERENCES: 3 J.A.C.S. 54, 2398 (1932) Buehler et al; 3' J. Chim. Phys. 34, 707 (1937) Timmerman and Hermaut-Roland; 32 J. Chem. Soc. (London) 107, 276 (1915) Cauwood and Turner

NAME	p-Ethyl an	iline				STRUCTURAL FORMULA
	p-Amino e	hylb	enzene			<b>~</b>
Mole % Pur. 99	Ref. Mo	lecul muli	ar C <sub>8</sub> H <sub>11</sub> N	Molecular Weight 121.1	76	G <sub>2</sub> H <sub>5</sub>
		Ref.			Ref.	Ref.
F. P. *C	-5.08	1	dt/dP			f to
F.P. 1009	-4.87	4	°C/mm			g K
B. P. *C			25°C	85.39	5	
760 mm	217.82	1	BP t	0.05442 0.03466	5	f' to
100	147.78 116.44	5	t <sub>e</sub> 30 mm	0,7892	5	g' ''K
10	92.31	5	<del></del>	+	+	h' .
1	51.61	5	AHm cal/g	21.0	4	m to
Pressure			ΔHv cal/g 25°C	117.10		n K
mm 25°C		5	30 mm	117.19	5	•
t <sub>e</sub>	1340.3	5	BP	90.01	5	m <sup>1</sup> to
Density			te (d a)	87.09	5	n' K
g/ml 20°0	0.96787 0.96388	1	l (6 (4, 6)	86.33	5	;,
dt 25	0.95987	4	AHv/T <sub>e</sub>	20.47	5	
<u>a</u>	0,98383	4	d 148 to	122.5	5	Surface tension dynes/cm. 20°C 35.10 1
Ь	-0.0380	4			5	30 34.14 1
Ref. Index			d'   20 to e'   148 °C		5	40
n <sub>D</sub> 20°0		1		+ 0.1311	<u> </u>	Parachor [P]
25	1.55291	1	dcg/ml			20°C 304.7 4
35	1.54825	1	vc ml/g tc °C			30  305.1   4
"C"	0.7498	4	Pcmm			40 Sugd. 314. 7 5
MR (Obs.		4	PV/RT	+	+	Exp. L.1, %/wt.
MR (Calc.		5	25°C	1.0000	5	u.
(nD-d/2)	1.07142	4	30 mm	1.0000	5	Dispersion
Dielectric		1	BP	0.9452 0.9343	5	Flash Point *C
A 148 to		4	t e t c	0.7343	•	Fire Point
B 1_340 °C	C_ 1813.6 198.	4 5	ΔHc kcal/m	<del> </del>	-	M. Spec.
A* 148 to		5	ΔHf			Ultra V.
B* 255 °C		5	ΔFf			X-Ray Dif. Infrared
к — — -	_		Viscosity			Solubility in +
t, to	<u>-</u>		centistokes	2 040	1	Acetone
		1	7 20 °C	3.849 2.3149	li	Carbon tet.
A'   20 to	7,57508	5	60	1.5733	1	Benzene Ether
B' 148 °C		5	ļ	<u> </u>	ļ	n-Heptane
_ c'	216.	5	B <sub>v</sub> 35 to	87 <u>5</u> . 3	4	Ethanol
A1# 20 to		5	A   70 °C	3.56984	4	Water
B'* 148 °C	1925.6	5	(B <sup>V</sup> )  to			Water in
Acl to	2		(A <sup>V</sup> )  °C	1	L	]
Bc tc C	<u>-  </u>	1	c <sub>p</sub> liq. •K			]
	0.01755	╁	15	1		
Cryos. A consts. B		1	c <sub>p</sub> vap, *K			
t <sub>e</sub> °C	242.4	5	c <sub>v</sub> vap.	<u> </u>	<u> </u>	grams/100 grams solvent
REFEREN	CES: 1-Dow	2-A	PI 3-Lit. 4-	Calc. from de	et. de	ata 5-Calc. by formula
SOURCE:			ow.			
PURIFICA	TION		stillation			
	JRE REFERE					
l						

NAME	n-Butylan	line				STRUCTURAL I	No. 6	
l MAINE	n-Butyl ar		enzene		$\dashv$		C <sub>4</sub> H <sub>9</sub> )	
Mole % Pur. 99	Ref. Me	olecul	ar C <sub>10</sub> H <sub>15</sub> N	Molecular Weight 149.1	38	Ų		
		Ref.			Ref	I		Ref.
F.P. *C F.P. 100	-14.40	1	dt/dP *C/mm 25*C	222.02	5	f   to		
B. P. °C 760 mm 100 30	241.59 169.26 136,69	1 5 5	BP t <sub>e</sub> 30 mm	322.92 0.0563 0.03446 0.8207	5 5	h f' to g'  *K_		
10	111.65	5	ΔHm cal/g		Ť	h'		
Pressure mm 25°C	0.03415 1407.01	5 5 5	ΔHv cal/g 25°C 30 mm BP	107.44 90.92 78.08	5 5 5	m   to		
Density g/ml 20°0 dt 25 d4 30	0.93226 0.92835 0.92444	1 1 4	te te (d, e) AHv/Te	74.87 74.65 20.57	5 5 5	m'   to n'   K o'   Surface tension		
a b Ref. Inde	0.94790 -0.0 <sub>3</sub> 78	4 4	d   140 to e   270 °C d'   25 to e'   140 °C	107.66 0.1224 111.14	5 5	dynes/cm. 20°C 30 40	33.85 32.88 31.98	1 1 1
n <sub>D</sub> 20°0 25 30		1 1 4	e'   140 °C  d g/ml vc ml/g tc °C	0,1479	5	Parachor [P] 20°C 30 40	385.9 386.3	4 4
"C"	0.7507	4	P <sub>c</sub> mm			Sugd.	386.9 385.6	5
MR (Obs. MR (Calc. (nD-d/2) Dielectric	1, 0780	4 5 4	PV/RT 25°C 30 mm BP	1.0000 1.0000 0.9500	5 5 5	Exp. L.1.%/wt. u. Dispersion Flash Point °C		
A 140 t B L 370°	7, 29253 C 1917, 28 193,	4 4 4	t <sub>e</sub> t <sub>c</sub> AHc kcal/m	0.9316	5	Fire Point M Spec.		
A* 140 to B* 280 ° K		5 5	ΔHf ΔFf Viscosity		-	Ultra V. X-Ray Dif. Infrared Solubility in +		
c t t <sub>x</sub>   t A'   25 t		5	7 20 °C 40 60	3. 4579 2. 1212 1. 4674	1 1 1	Solubility in + Acetone Carbon tet. Benzene Ether	8 8 8	
B' _140 'C'	C 2011.5 201.	5 5	B <sup>V</sup>   30 to A <sup>V</sup>   90 °C	1.1127 774.92 3.85239	4 4	n-Heptane Ethanol Water	8 8 8	
Ac   t	C 1917.1	5	(B <sup>V</sup> ) to			Water in		
Cryos. A consts. B		1	c <sub>p</sub> liq. •K					
t <sub>e</sub> °C	269.64	5	c <sub>v</sub> vap.			grams/100 gran	ns solvent	
REFEREN	CES: 1-Dow	2 - A1	PI 3-Lit. 4-C	alc. from de	t. da	ta 5-Calc. by for		
SOURCE:			ow					
PURIFICA	TION:	Di	istillation					
LITERAT	JRE REFERE	NC E	S:					
L								

TABLE X. AROMATIC AMINES

NAME	4-Amino-l	, 3 -di	imethylbenzene	<del> </del>		No. 7 STRUCTURAL FORMULA					
NAME	4-Amino-m					CH:	3				
Mole % Pur.	1 1	<u>-</u> -		Molecular Weight 121.17	,,	NH;	СН3				
<del>// 1 u 1 .</del>	1 1.0.	Ref.		T T T T T T T T T T T T T T T T T T T	Ref.			Ref			
F. P. °C	16.	3	dt/dP			f to		$\top$			
F.P. 100%			°C/mm	00.53		g  •K					
B. P. *C	214.0	31	25°C BP	80.52 0.05330	5	h					
760 mm 100	214.0 145.5	5	t <sub>e</sub>	0.03422	5	f' to					
30 10	114.6 90.9	5	30 mm	0,07776	5	g' <u>*K</u>		1			
1	50.7	5	ΔHm cal/g	<u> </u>		h¹ i		+-			
Pressure			ΔHv cal/g 25°C	117,67	5	m to					
mm 25°C	0.1539	5	30 mm	105.75	5	0					
t <sub>e</sub> Density	1324.7	-	BP	90.82 87.48	5	m¹ to		+-			
g/ml 25°C	0.9723	3	t <sub>e</sub> (d, e)	87.24	5	n'  K_					
dt 50 4 70	0.9520 0.9355	3	AHV/T	20.74	5			_			
a 70	0.9918	4	d 115 to		5	Surface tension	24.75	١,			
b	-0.0378	4	_e240 <u>*C</u> d' 20 to		5	dynes/cm. 25°C	36.75 34.46	3			
Ref. Index			e' 115 °C		5	70	32, 38	3			
<sup>n</sup> D 25°C	1.55689	4	d <sub>c</sub> g/ml			Parachor [P] 25°C	307.2	4			
50	1.54489	4	l v_mı/g			50	308. 2	4			
"C"	0.7483	4	tc °C Pc mm			70 Suga	308.8 314.7	4 5			
MR (Obs.)		4	PV/RT	<del> </del>	-	Exp. L. l. %/wt.	314.1	+-			
MR (Calc. (nD-d/2)	39.853 1.06899	5 4	25°C	1.0000	5	u.					
Dielectric		<u> </u>	30 mm BP	1.0000 0.9485	5	Dispersion		4_			
A 115 to		5	l t	0.9317	5	Flash Point C Fire Point					
B   340 °C	1819.8	5	L <sup>t</sup> c	<u> </u>		M. Spec.		+			
C A* 115 to	198.	5	ΔHc kcal/m ΔHf			Ultra V.					
B*  250 °C		5	ΔFf			X-Ray Dif. Infrared					
к — — -	-		Viscosity			Solubility in +	<b>†</b>	$\top$			
t <sub>k</sub> to	-		centistokes 7°C			Acetone					
ا چا <sup>در</sup>	;					Carbon tet. Benzene					
A'   20 to B'   115 °C		5			l	Ether		İ			
C, 1713	216.	5	B <sup>V</sup> to			n-Heptane Ethanol					
A1# 20 to		5		_	1	Water					
B'* 115 °C	+	5	(B <sup>V</sup> )  to		İ	Water in		+			
Acl to			(A <sup>V</sup> )  °C	<del></del>	<u> </u>						
Cc Cc			c <sub>p</sub> liq. *K	- [							
Cryos. Acconsts. B			c <sub>p</sub> vap. °K								
te °C	237.82	5	c <sub>v</sub> vap.								
# 45°C						grams/100 gra	ms solve	nt			
REFEREN	CES: 1-Dow	2-A	PI 3-Lit. 4	-Calc. from de	t. da	ta 5-Calc. by for	mula				
SOURCE:		Li									
PURIFICA			it.								
LITERATU	JRE REFERE	NCE	S: 3 J.A.C.S.	. <u>54</u> , 2398 (193	32);	3' Ber. <u>35</u> , 3749,	Junghahr	1			

No. 8 STRUCTURAL FORMULA o-Chloroaniline NAME NH2 o-Amino chlorobenzene Ref. Molecular C6H6CIN Molecular Mole % Pur. 99.86 Weight 127.570 Ref Ref. F, P, °C F, P, 100% -1.94 1 dt/dP f to °C/mm g <u>°K</u> 25°C 51.44 5 B. P. \*C h ΒP 0.0542 760 mm 208.84 139.48 1 0.0352 5 ſ١ to 100 4 g' °K 30 108.43 4 30 mm 0.7812 5 10 84.55 4 h' AHm cal/g 44.3 5 to ΔHv cal/g m Pressure •ĸ n 25°C 106.33 5 mm 25°C 0,2533 5 o 30 mm 96.80 1311. t<sub>e</sub> BP 83.06 to m Density g/ml 20°C 80.06 5 te (d, e) •ĸ n' 1.21266 79.81 5 01 25 1 dt4 ΔHv/T 20.19 5 30 1,20308 4 Surface tension ī 110 111.63 5 to 1.23182 dynes/cm. 20°C 43.66 \*<u>C</u> 5 230 0.1368 -0.0396 h 4 30 42.54 1 75 109.19 ī 40 41.35 1 •' Ref. Index 110 •c 0.1143 1,58894 n<sub>D</sub> 20°C Parachor [P] dc g/ml 25 270.5 1.58644 vc ml/g tc °C 20°C 30 1.57441 1 30 270.8 4 271.1 40 4 "C" 0.6322 4 P<sub>c</sub> mm Sugd. 273.9 5 MR (Obs.) 35.45 4 PV/RT Exp. L.1. %/wt. MR (Calc.) 35.484 1.0000 25°C (nD-d/2) 5 0.98261 30 mm 1.0000 5 Dispersion Dielectric BP 0.9482 Flash Point °C 0.9316 5 110 to 7.19240 Fire Point 1762.74 t<sub>c</sub> B 1330 °C M Spec. С 200.0 5 AHc kcal/m Ultra V ΔHf A\* 110 to B\* 240 °C 1.60261 5 X-Ray Dif. ΔFf 1664.35 Infrared ĸ Viscosity Solubility in c centistokes Acetone to 20 °C 2.9157 1 Carbon tet •c 1,8458 40 Benzene 1.3057 60 A' | 25 to 7.55246 Ether 1.0250 1991.84 80 B' [110 °C 5 n-Heptane C 219.4 5 В 40 to 706.49 2.01047 Ethanol AV I 90 °C Water 0.876 1 A\*\* 25 to B\*\* 110 °C 1.96779 5 Water in (BV) 1888.93 to Ac l to (AV)1 °C Bc •c cp liq. ۰ĸ Cc Cryos. A. c<sub>p</sub> vap. 0.01785 consts. B° r° .C c, vap. 5 232.59 grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det, data 5-Calc. by formula SOURCE: Dow PURIFICATION: Distillation, absorption LITERATURE REFERENCES:

NAME	m-Chloro	nilin	e			STRUCTURAL		
	m-Amino	chlor	obenzene			NH <sub>2</sub>	2	
Mole % Pur. 99.	79 Ref. Mo	lecul rmuk		Molecular Weight 127.57	,,	Ų	CI	
		Ref.		T	Ref.			Ref.
F.P. °C F.P. 100	-10, 29	1	dt/dP *C/mm			f to		
B. P. °C	<u> </u>	+-	25°C	144.58	5	g ' <u>*K</u> h		
760 mm	229.92 158.16	1 1	BP t <sub>e</sub>	0.0560 0.0356	5	f' to		
30 10	125.95 101.15	4	30 mm	0.8109	_5_	g' <u>*K</u>		
1	59.3	5	ΔHm cal/g	19.02	4	m to		+
Pressure mm 25°C	0.0838 1344.	5	ΔHv cal/g 25°C 30 mm BP	114.36 102.01 86.21	5 5 5	n  •K		
Density g/ml 20°0 gt 25	1.21606	1 1	t <sub>e</sub> (d, e)	82.74 82.30	5	m' to		
d <sub>4</sub> 25	1.20688	4	ΔHv/T <sub>e</sub>	19.96	5	Surface tension		$\dagger \lnot \dagger$
a b Ref. Index	1.23442 -0.0 <sub>3</sub> 92	4 4	d 125 to e 250 °C d' 20 to e' 125 °C	121.15 0.1520 117.41 0.1223	5 5	dynes/cm. 20°C 30 40	45.68 44.52 43.42	1 1 1
<sup>n</sup> D 20°0 25 30		1 1 1	d g/ml vc ml/g tc °C	0.123		Parachor [P] 20°C 30	272.7 273.0	4 4
"C"	0, 6355	4	P <sub>c</sub> mm			40 Sugd.	273.4 273.9	5
MR (Obs. MR (Calc. (nD-d/2)	) 35.484 0.98611	4 5 4	PV/RT 25°C 30 mm	1.0000	5	Exp. L.1.%/wt. u. Dispersion		
A 125 to B   350 °C	7.23603	4 4	BP t e t c	0.9330 0.9135	5	Flash Point C Fire Point		
A* 125 to B* 265 °C		5 5	ΔHc kcal/m ΔHf ΔFf			M. Spec. Ultra V. X-Ray Dif. Infrared		
K C C tk C C C C C C C C C C C C C C C C	-		Viscosity centistokes 7 20°C 40	3.3538 2.0285	1 1	Solubility in Acetone Carbon tet. Benzene	80	
A'   25 to B'   125 °C		5 5 5	80 By 40 to	1.3939 1.0387 803.91	1 4	Ether n-Heptane Ethanol		
A** 25 to B** 125 °C	2.0050	5 5	A   90 °C   10 To	3, 74043	4	Water Water in		
Acl to Bc t <sub>c</sub> C	<u> </u>		(A <sup>V</sup> )  °C c <sub>p</sub> liq. °K					
Cryos. Acconsts. B		1	c <sub>p</sub> vap. *K					
t <sub>e</sub> °C	255.63	5	c <sub>v</sub> vap.			L		Ш.
BEEEDEN	CFS, 1-Do-	2 A	PI 3-Lit. 4-	Calc from de	4-	grams/100 gra		nt
SOURCE:	CES: 1-Dow		P1 3-LIE, 4-	Cale, from de	01	ta 5-Calc, by for		
PURIFICA	TION		stillation, chro	motographed				
<del></del>	JRE REFERE		<del></del> _					
l								

No. 10 STRUCTURAL FORMULA m-Aminobenzotrifluoride NAME NH2 Molecular C7H6F3N Mole Ref. Molecular Formula Weight 161.118 Ref. Ref. 5.65 3 dt/dP f \$0 F.P. 100% °C/mm •ĸ g 25°C B. P. °C 28.86 5 h BP 0.0513 5 760 mm 191.13 3 0.0346 ſ١ to t<sub>e</sub> 100 125.59 4 g' <u>•</u>K 30 30 mm 0.7370 4 96.28 4 10 73.76 4 h' ∆Hm cal/g 35.8 5 to ΔHv cal/g m Pressure •ĸ 25°C 30 mm 83.95 5 n mm 25°C 0.4527 0 76.15 5 te 1247. 5 ВP 64.24 5 Density m' to 61.97 5 te te (d, e) g/ml 20°C •ĸ 5 61.69 dt4 ΔHv/Te 20,60 5 30 Surface tension 95 to 88,23 5 dynes/cm. 20°C 21<u>0 °C</u> 25 to 0.1255 5 30 à٠ 86.69 1 40 Ref. Index • 95 •c 0.1095 20°C 1.4788 [P]  $\mathbf{n}_{\mathbf{D}}$ Parachor d vc g/ml 25 1.4769 3 20°C ml/g 30 1.4750 3 tc 30 •c 40 "C" P<sub>c</sub> mm Sugd. 301.5 5 MR (Obs.) PV/RT Exp. L.1.%/wt. MR (Calc.) 34.785 5 25°C 1,0000 (nD-d/2)u. 30 mm 1.0000 Dispersion Dielectric 0.9410 BP Flash Point °C 0.9230 95 to t<sub>e</sub> 7.17030 3 Fire Point ťc 1650.21 M Spec. Ultra V. C 193.58 3 AHc kcal/m ΔHf A\* 95 to 1.71965 X-Ray Dif. ΔFf B+ 230 °C 1564.62 Infrared ĸ Viscosity Solubility in c centistokes Acetone t<sub>x</sub> | to Carbon tet. •c Benzene 25 to 7.52897 Ether B١ 95 °C 1864.69 n-Heptane B<sup>V</sup> 211.84 to Ethanol ÃV A1\* •c Water 25 to 2.06433 Water in (BV) B'\* 95 °C 1769.39 to Ac to  $(A^{V})_{I}$ °C Bc •c cp liq. ۰ĸ Cc Cryos. A. cp vap. •ĸ consts. B. c, vap. f° .C 211.44 grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: Lit. **PURIFICATION:** Lit. LITERATURE REFERENCES: 3 J.A.C.S. 75, 1997 (1953) Kardon and Saylor

Nitrobenzene STRUCTURAL FORMULA NAME NO2 Molecular C6H5No2 Mole Ref. Molecular Weight 123,108 % Pur. Ref. Ref. F.P. \*C F.P. 100% 37 5.7 dt/dP f °C/mm g °K 25°C 47.17 B. P. \*C h 3<sup>8</sup> BP 0.05573 760 mm 210.85 0.03615 5 ſ١ to 100 139.83 5 g' <u>•к</u> 30 108.2 5 30 mm 0.7934 5 5 10 83.9 36 h' AHm cal/g 22,50 43.1 5 m to ∆Hv cal/g Pressure •K n 25°C 107.14 mm 25°C 0.284 5 0 30 mm 98.65 t<sub>e</sub> 1317.0 5 BP 84.30 5 m' to Density te (d, e) 80.85 5 •K n' g/ml 20°C 1,2032 5 80.64 ٥' 25 1.1982 5 32  $d_4^t$ 19.75 5 AHv/T 30 1.1936 Surface tension d 108 113.78 to 1.2232 dynes/cm. 20°C  $\frac{1}{1} = \frac{235}{20}$ 0.1398 5 ь 30 41.96 40.52 20 to 109.69 5 5 40 e' | 108 0.1019 Ref. Index 1.55230 [P] n<sub>D</sub> 20°C Parachor dcg/ml vcml/g tc°C 34 1.55006 25 20°C 1.54782 4 30 30 39 482.8 40 "C" 0.6001 4  $P_c$  mm 262.5 5 Sugd 32.708 MR (Obs.) 4 PV/RT Exp. L.1.%/wt. MR (Calc.) 32,507 1.0000 5 25°C 0.95070 4 u. (nD-d/2) 30 mm 1.0000 Dispersion 34.89 Dielectric 35 BP 0.9475 Flash Point °C 0.9305 A 108 to 7,08283 Fire Point B 1300 °C 1722, 2 M. Spec. AHc kcal/m 199. 5 Ultra V. A\* 108 to B\* 250 °C ΔHf 1.47568 5 X-Ray Dif. ΔFf 1623.4 Infrared Viscosity Solubility in centistokes Acetone to Carbon tet. °C **,** Benzene A' | 15 to 7.55755 Ether œ B' |108\_C 2026. n-Heptane B<sup>V</sup> │ 225. Ethanol to •c 1.95137 Water A'\* 20 to B'\*108 °C 5 Water in (B<sup>V</sup>) 1919.3 to Acl  $(A^{V})$ °C Bc tc •c c<sub>p</sub> liq. ۰ĸ Cc Cryos. A. •ĸ c<sub>p</sub> vap. consts. B. c<sub>v</sub> vap. te C 235.54 5 grams/100 grams solvent 4-Calc, from det, data REFERENCES: 1-Dow 2-API 3-Lit. 5-Calc. by formula SOURCE: PURIFICATION:

LITERATURE REFERENCES: 3 Z. Anorg. Chem. 199, 91 (1931); 3<sup>1</sup> J. Chem. Soc. (London) 768 (1933) Sugden; 3<sup>2</sup> J. Chem. Soc. (London) 65, 1025 (1896) R. Perkins; 3<sup>3</sup> Thesis Freiburg (1919) E. Dummer; 3<sup>4</sup> J. Chem. Soc. (London) 127, 1049 (1925); 3<sup>5</sup> J. Chem. Soc. 570 (1930); 3<sup>6</sup> Z. Physik Chem. 72, 225 (1910); 3<sup>7</sup> J. Gen. Chem. (U.S.S.R.) 17, 665 (1947); Udovenko and Ayrapetova; 38 C. Zentral II 442 (1910) Z. El. Ch. 34, 112 Stachorski; 39 ICT.

r						No. 2	
NAME	o-Ethyl	nitro	benzene			STRUCTURAL FORMULA	١.
						NO2 C2H5	
	24 34			4-1		U	
Mole % Pur. 99.	Ref. Mo 95 1 Fo	rmul		Molecular Weight 151.1	60	· · · · · · · · · · · · · · · · · · ·	
		Ref.			Ref		Ref.
F. P. *C	-12.26	1	dt/dP			f to	
F. P. 100% B. P. °C	<b>!</b>	$\vdash$	*C/mm 25*C	144.64	5	8   <u>*K</u>	
760 mm	232.52	4	BP	0.05723 0.03587	5	f' to	$\vdash$
100 30	159.4 126.73	4	t <sub>e</sub> 30 mm	0,8211	5	g'   '*K_	
10	101.6 59.4	5 5	ΔHm cal/g	23.23	1	h'	
Pressure	37.1	<del>                                     </del>	ΔHv cal/g			m   to rK	
mm 25°C	0.084	5	25°C 30 mm	96.22 85.36	5	ö	
t <sub>e</sub> Density	1373.	5	BP	72.73 69.74	5	m¹   to	Н
g/ml 20°C	1.12066	1	te te (d, e)	69.46	5	n'   •K	
dt 25	1.11602	1	AHv/Te	19.77	5	<u> </u>	Н
•	1.13922	4	d   125 to e   260 °C	100.49 0.1194	5	Surface tension dynes/cm. 20°C 38.93	1
b	-0.03928	4	d'   25 to	98.89	5	30 37.80 40 36.76	1 1
Ref. Index n <sub>D</sub> 20°C	1.53557	1	e' 125 °C	0.1067	5	Parachor [P]	H
25 30	1.53332	1	d g/ml v ml/g t °C			20°C 336.9 30 336.5	4 4
"C"	0.6260	4	·c ·			40 338.1	4
MR (Obs.)	42.030	4	P <sub>c</sub> mm		$\vdash$	Sugd. 340.5# Exp. L.1.%/wt.	5
MR (Calc.)   (nD-d/2)	41.743 0.97524	5 4	25°C	1,0000	5	u.	
Dielectric	21.9#	1	30 mm BP	1.0000 0.9450	5	Dispersion	
A 125 to	7.14960	4	t <sub>e</sub>	0. 9257	5	Flash Point °C Fire Point	
B 1290 °C	1825.0 195.	4 5	t <sub>c</sub> ΔHc kcal/m			M Spec.	
A*   130 to	1.61974	5	ΔHI ΔFi			Ultra V. X-Ray Dif.	
B*   270 °C   K	1724.5	5	Viscosity			Infrared	
c			centistokes	2 20/2	١. ا	Solubility in + contact of the conta	
t <sub>k</sub> to t <sub>x</sub> c			7 20 °C	2.2063 1.5363	1	Carbon tet.	
A'   15 to	7.50 <b>2</b> 05 2058.9	5	60 80	1.1638 0.9173	1 1	Ether ∞	
B; L125 °C	215.0	5	BV 30 to	619.91	4	n-Heptane ∞ Ethanol ∞	
A** 20 to	2.17972	5	A   90 °C	₹. 20719	4	Water Water in 0.159	1
B'* 125 °C	1955.4	5	(B <sup>V</sup> ) to				Ť
Bc t *C	1		c <sub>p</sub> liq. °K		$\vdash$		
Cryos, A	0.02581	1	11 -				
consts. B	0.02581	Ľ	c <sub>p</sub> vap. *K				
t <sub>e</sub> °C	259.91	5	c <sub>v</sub> vap.				
	5 T <sub>c</sub> ≠ 0.2		≠ using 02 as			grams/100 grams solven	t
	ES: 1-Dow	2-AI Do		alc. from de	t. da	ta 5-Calc, by formula	
SOURCE: PURIFICAT	ION:						
	RE REFEREI		stillation S:				
	a.e.						
L							

No. 1 Benzyl alcohol NAME STRUCTURAL FORMULA Ç H₂ OH Molecular C7H8O Mole Ref. Molecular Weight 108.134 % Pur. 99.93 1 Ref. Ref. Ref. -15.19 1 F.P. \*C F.P. 100% dt/dP to °C/mm ١ •K g 25°C 81,9213 5 B. P. \*C h BP 0.04924 4 760 mm 205.1 1 0.03185 5 ſ١ to 100 141.15 4 g' 30 30 mm 4 0.7397 5 111.9 10 89.23 5 h١ AHm cal/g 1 50.51 5 m to AHv cal/g Pressure n •ĸ 25°C 135.75 5 0.1469 mm 25°C 5 o 30 mm 122.84 5 1300.7 5 t, BP 106.39 m' to Density 102.99 5 t<sub>e</sub> (d, e) 'n •ĸ g/ml 20°C 1.04535 1 102.66 5 ٥' 1.04156 1 d<sub>4</sub> AHV/Te 22.30 5 30 1.03777 4 Surface tension 112 to 142.59 5 1.06051 -0.0<sub>3</sub>758 dynes/cm. 20°C 42.76 225 °C 0.1765 5 ь 30 41.27 139.47 0.1486 40 40.07 4 Ref. Index e' i 112 °C 5 20°C 1.54035 1 nD Parachor [P] d<sub>c</sub> g/ml 25 1.53837 1 20°C vc ml/g tc °C 30 1.53639 4 30 40 "C" 0,67673 4 P<sub>c</sub> mm 0 = 18264.1 5 Sugd. MR (Obs.) 32.474 4 PV/RT Exp. L. 1. %/wt. MR (Calc.) 32,450 25°C 1.0000 5 (nD-d/2) 1.01768 4 30 mm 1,0000 Dispersion Dielectric 0.9500 5 BP Flash Point C 0.9361 A 112 to 7.58200 1 Fire Point B |\_330 ℃ 1904.3 M. Spec. С 200. 1 AHc kcal/m Ultra V. ΔHf A\* 112 to 1.92156 5 X-Ray Dif. ΔFf B\* 240 °C 1806.4 Infrared Viscosity ĸ Solubility in centistokes Acetone to Carbon tet. •c Ç Benzene 20 to 7.93428 Ether 112 °C 2130.42 B<sup>V</sup> | n-Heptane C 218. 5 to Ethanol •c Water A'\* 20 to 2.27748 Water in B'# 112 °C 2028,06 (B<sup>V</sup>)| to Acl  $(A^{\vee})|$ to °C Bc •c \_t<sub>c\_\_</sub> cp liq. •ĸ Cc Cryos, A° consts, B° c<sub>p</sub> vap. •ĸ c, vap. f" .C 226, 22 5 grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det, data 5-Calc. by formula SOURCE: Dow **PURIFICATION:** Distillation LITERATURE REFERENCES:

[	. Phanul	- 411	-laskal		$\neg$		No. 2				
NAME	a-Phenyl				STRUCTURAL FORMULA CH (OH)CH3						
ļl	a-Methyll	enzy	I alconol		$\dashv$	$\cap$					
Mole % Pur.		lecul rmul	$_{a}^{ar}$ $C_{8}H_{10}O$	Molecular Weight 122,1	60						
	_	Ref.			Ref		Ref.				
F.P. *C F.P. 1009	Glassy	1	dt/dP *C/mm			f to					
B. P. °C	·	<del> </del>	25°C	70.673	5	8   ' <u>*</u> K					
760 mm	203.4 139.26	1 4	BP t <sub>e</sub>	0.04944 0.03211	4 5	f' to					
30	109.98	4	30 mm	0.7408	5	g'   ' <u>*</u> K_					
10	87.25 48.52	5	ΔHm cal/g			h'					
Pressure		<b>†</b>	ΔHv cal/g 25°C	118,32	5	m to					
mm 25°C	0.1730	5	30 mm	107.47	5	•					
Density		+	BP te (d.e)	93.07 90.04	5	m'   to					
g/ml 20°0	1.01353 1.00949	1 1	[	89.82	5	n'   ' *K					
d <sub>4</sub> 30	1.00545		ΔHv/Te	22.10	5	Surface tension					
a b	1.02969 -0.0 <sub>3</sub> 808		d 110 to e 220 °C	124.43 0.1542	5	dynes/cm. 20°C	39.99 4 38.73 4				
Ref. Index	<del></del>	+	d'   20 to	121.51 0.1277	5	40	37.50 4				
n <sub>D</sub> 20°0	1.52752 1.52527	1 1	d g/ml vc ml/g tc °C			Parachor [P] 20°C					
30	1.52302		t <sub>c</sub> *C			30					
"C"	0.68244	4	P <sub>c</sub> mm			0 = 15 Sugd.	303.1 5				
MR (Obs.) MR (Calc.		4 5	PV/RT			Exp. L.1.%/wt.	<del> </del>				
(nD-d/2)	1.02076	1 -	25°C 30 mm	1.0000	5	u. Dispersion					
Dielectric			ВР	0.9500 0.9357	5	Flash Point °C					
A 110 t B _330 °C		1 1	t <sub>e</sub> t <sub>c</sub>	0,755.		Fire Point					
С	201.	1	ΔHc kcal/m ΔHf			M Spec. Ultra V.					
A* 110 to B* 245 °C		5	ΔFÍ			X-Ray Dif. Infrared					
K		1	Viscosity centistokes			Solubility in +					
t <sub>k</sub>			7 20 °C	10,9568	1	Acetone Carbon tet,					
A' 20 to		5	40 60	4.7356 2.5905	1	Benzene					
B' [110 °	2115.01	5	B <sup>V</sup>   30 to	1.6233	1	Ether n-Heptane					
A'+ 20 to	219.	5	B <sup>V</sup>   30 to A <sup>V</sup>   90 °C	1286.0 4.56939	4	Ethanol Water					
B'* 110 °		5	(B <sup>V</sup> ) to			Water in					
Ac to			(A <sup>V</sup> )  •C								
Bc tc_			c <sub>p</sub> liq. •K								
Cryos. A' consts. B'			c <sub>p</sub> vap. *K								
t <sub>e</sub> °C	224.48	5	c <sub>v</sub> vap.								
REFEREN	CES: 1-Dow	2-A1	PI 3-Lit. 4-0	alc. from de	t. de	fgrams/100 grants 5-Calc. by form	ns solvent				
SOURCE:			ow								
PURIFICA	TION:	D	istillation								
LITERATI	RE REFERE	NCE	S:								
I											
i											
L											

NAME		β-Phe	enyl e	thyl	alcohol		]	STRUCTURAL		LA	
	1	Phene	thyl	alcoh	ol			CH <sub>2</sub> CH <sub>2</sub> OH			
Mole % Pur. ?		Ref.	Moi For	lecula mula		Molecular Weight 122.1	60	Ų			
				Ref.			Ref.			Re	
F.P. C F.P. 1009		lassy	<u> </u>	1	dt/dP *C/mm			f to			
B. P. *C					25 <b>°C</b>	133.0844	5	g ' <u>K</u>			
760 mm 100		18.2 51.3	3	1 4	BP t <sub>e</sub>	0.05171 0.03332	5	f' to		$\top$	
30	1	20.93	3	4	30 mm	0.7681	5	g' <u>*K</u>			
10 1		97.39 57.38		5	ΔHm cal/g			h'		1	
Pressure			-		ΔHv cal/g		_	m to		[	
mm 25°C			3837	5	25°C 30 mm	122.99 109.66	5	0			
t <sub>e</sub> Density	113	11.5		⊦≟∥	BP	93.08	5	m¹ to		T	
g/ml 20°0	:		2023	1	te te (d, e)	89.62 89.23	5	n'  K_			
d <sub>4</sub> 25 30			1642 1261	1 4	AHv/Te	21.30	5			1	
<u>.</u>	+		3547	4	d 121 to	130.28	5	Surface tension dynes/cm. 20°C	41.06	4	
ь		-0.0		4	_a	0.1705 126.46	5	<b>8</b> 30	39.95	4	
Ref. Index		1		١. ا	e'   121 °C	0.1389	5	40	38.67	14	
<sup>n</sup> D 25	1		3252 3052	1 1	d <sub>c</sub> g/ml			Parachor [P] 20°C		ł	
30	-		2852	4	vc ml/g tc *C			30 40		İ	
"C"			3402	4	P <sub>c</sub> mm				303.1	5	
MR (Obs. MR (Calc.		37.13 37.06		4 5	PV/RT			Exp. L.1.%/wt.			
(nD-d/2)		1.02	2241	4	25°C 30 mm	1.0000	5	u. Dispersion			
Dielectric	-				BP	0.9347	5	Flash Point C		$\top$	
A 121 to B   340 °C		7.46 05.1	6926	1 1	te t	0.9171		Fire Point		$\bot$	
<u>c                                    </u>		97.		1	ΔHc kcal/m ΔHf			M. Spec. Ultra V.			
A*  121 to B*  260 °C		1.88	3168	5	ΔFf			X-Ray Dif. Infrared			
к ——-	-		_		Viscosity			Solubility in +		+	
t <sub>k</sub>					centistokes η °C			Acetone Carbon tet.			
A'   20 to		7.80	0851	5				Benzene Ether		1	
B' 121 °C	21	26.92		5	_v	<b>_</b>	+	n-Heptane			
C1	$\rightarrow$	15.	1104	5	B <sup>V</sup> to C			Ethanol Water		-	
A'* 20 to B'* 121 °C		2, 20 25, 12	0184 2	5	(B <sup>V</sup> )  to	-		Water in		$\perp$	
Acl to				$\Box$	(A <sup>V</sup> )  °C						
Bc tc Cc	-				c <sub>p</sub> liq. °K						
Cryos, A'					c <sub>p</sub> vap. *K						
t <sub>e</sub> °C	+-	40,81	1	5	c <sub>v</sub> vap.						
								f grams/100 gra		nt	
	CES	: 1-I	Dow			Calc. from d	et. da	ta 5-Calc, by for	mula		
SOURCE:	TIO			Do	tillation						
PURIFICA LITERATI			FDF								
-MIEKAI	'RL	REF	er E.	MC ES	•						

No. 4 STRUCTURAL FORMULA o-Ethyl-β-phenyl ethyl alcohol NAME Cg H5 o-Ethylphenethyl alcohol C He CHe OH Molecular C10H14O Mole Molecular Ref Weight 150, 212 % Pur. Ref. Ref Ref. F.P. °C F.P. 100% Glassy 1 dt/dP ſ to °C/mm <u>•K</u> g 25°C 732.622 B. P. \*C h BP 0.05424 4 760 mm 249.7 1 ſ 0.03291 5 to 100 179.38 g' °K 30 30 mm 0.8110 5 147.32 4 10 122.45 h' AHm cal/g 1 80, 13 5 to ΔHv cal/g Pressure n •ĸ 111.78 25°C 0.01436 mm 25°C o 30 mm 5 96.15 t<sub>e</sub> 1410.6 5 82.15 BP 5 5 Density g/ml 20°C m' to 78.79 te (d, e) •ĸ n' 0.99720 78.45 5 o'  $\mathbf{d_4^t}$ 25 0.99365 ΔHv/Te 5 21.52 30 0.99010 4 Surface tension 147 to 116,30 5 e 1 270 1.0114 dynes/cm. 20°C 40.97 5 0.1368 •c Ъ -0.03710 30 39.82 38.68 4 114.98 40 4 Ref. Index e' 147 0.1278 n<sub>D</sub> 20°C 1.53045 [P] Parachor d g/ml 25 1.52859 20°C ml/g \*C 1.52673 30 t<sub>c</sub> 4 30 40 "C" 4 0.6973 P<sub>c</sub> mm Sugd. 381.1 5 MR (Obs.) 46.547 PV/RT Exp. L.1.%/wt. MR (Calc.) 46.304 1.0000 25°C 5 (nD-d/2) 1,03185 4 30 mm 1,0000 Dispersion Dielectric ВP 0.9404 Flash Point °C t<sub>e</sub> 0.9219 A 147 to 7.53399 1 Fire Point B 380 °C 2055. 2 M Spec. C 192. 1 AHc kcal/m Ultra V. ΔHf 1.99777 A# 147 to X-Ray Dif. ΔFf B\* 290 °C 1955.36 Infrared Viscosity Solubility in centistokes Acetone to Carbon tet. •c Benzene A' | 20 to 7.85529 Ether 2279.03 B' L147 °C n-Heptane B<sup>V</sup> | C' 210. Ethanol to •c Water 2.32651 A1# 20 to Water in (BV) B'\* 147 °C 2176.55 to Ac to (AV) °C Bc •c cp liq. ۰ĸ Cc Cryos. Aº •K cp vap. consts. B° f .C c, vap. 276,73 5 grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: Dow PURIFICATION: Distillation LITERATURE REFERENCES:

	- Fabrul	No. 5  p-Ethyl-β-phenyl ethyl alcohol STRUCTURAL FORMULA									
NAME			<del></del>	· · · · · · · · · · · · · · · · · · ·	$\dashv$	STRUCTURAL	FORMULA H5				
	p-Ethyl	pheneth	yl alcohol								
Mole % Pur. 99	Ref. 1	Molecul Formuli		Molecular Weight 150.2	12		H <sub>2</sub> CH <sub>2</sub> OH				
		Ref.		I	Ref.		Ref.				
F.P. °C	7.87	1	dt/dP			f to					
F.P. 100	6		*C/mm 25*C	695.204	5	g ' ' •K	1 1				
B. P. *C 760 mm	250.0	1	BP	0.05476	4	h	<del>                                     </del>				
100	179.14	4	<u>'</u>	0.03326	5	f' to					
30 10	146.91	5	30 mm	0.8146	-	h'					
1	79.53	5	ΔHm cal/g ΔHv cal/g		╁	m to					
Pressure mm 25°C	0,015	19 5	25°C	111.37	5	n	-				
t <sub>e</sub>	1411.5	5	30 mm BP	95.55 81.46	5	<b> </b>	ļ				
Density			t_	78.04	5	m' to					
g/ml 20°	0.980 0.977		te (d, e)	77.72	5	0'	1				
dt 25 4 30	0.973		ΔHv/T <sub>e</sub>	21.29	5	Surface tension					
a b	-0.037		_e_l_2 <u>75</u>	0.1366	5	dynes/cm. 20°C	38.32 4 37.56 4				
Ref. Inde		†	d'   20 to	114.61 0.1298	5	40	36.06 4				
<sup>n</sup> D 20°			d <sub>c</sub> g/ml	<u> </u>		Parachor [P]					
30	1.521		∥ v_mı/g		ĺ	20°C					
"C"	0.699	59 4	tc °C Pc mm	1		40 Sugd	381.1 5				
MR (Obs.		4	PV/RT	<del> </del>	+-	Exp. L.1.%/wt.	1				
MR (Calc (nD-d/2)	46. <b>3</b> 04 1.032	60 4	25°C 30 mm	1.0000	5	u.	1				
Dielectric	:	$\top$	BP	1.0000 0.9400	5	Dispersion Flash Point *C					
A 147 to			<b>:</b> -	0.9215	5	Fire Point					
B (380 °C	2029.3 191.	1 1	tc AHc kcal/m	<b>-</b>	╁	M. Spec.					
A* 147 to			AH! AF!		1	Ultra V. X-Ray Dif.					
B* 290 °	1929.88	5	Viscosity		+-	Infrared	ļ				
\$ c	_		centistokes		1	Solubility in * Acetone					
			η ·c			Carbon tet. Bensene					
A'   20 to			1			Ether					
B' 1_147 *!	2251.25	5	B <sup>V</sup> to			n-Heptane Ethanol					
A1+ 20 to	2.275	12 5	_A <u>V                                    </u>			Water					
B'* 147 *	<del></del>	5	(B <sup>V</sup> )  to			Water in	1				
Ac to Bc to			(A <sup>V</sup> )  °C	<del> </del>	+-	4					
Ce	_		c <sub>p</sub> liq. •K		1	1					
Cryos, A consts, B			c <sub>p</sub> vap. *K								
t <sub>e</sub> °C	277.35	5	c <sub>v</sub> vap.		1	L					
REFEREN	CES: 1-Do	w 2-A	PI 3-Lit. 4-	Calc. from de	et. de	grams/100 grants 5-Calc. by fo					
SOURCE:		Dov									
PURIFICA	TION:	Dis	tillation								
LITERAT	URE REFE	RENCE	S:								
1											

No. 6 STRUCTURAL FORMULA NAME p-Chloro-β-phenyl ethyl alcohol p-Chlorophenethyl alcohol Molecular C 8H9C10 Molecular Mole Ref. CH2 CH2 OH Formula Weight 156.609 % Pur. Ref Ref. F, P. dt/dP f to •C/mm F.P. 100% g •ĸ 25°C 954.659 5 B. P. \*C h ВP 0.05654 4 760 mm 259.16 1 0.03391 5 ſ١ t<sub>e</sub> to 100 186.17 4 g' •ĸ 30 153.07 4 30 mm 0.8356 5 10 127.49 h' ∆Hm cal/g 84,10 to AHv cal/g m Pressure •<u>K</u> n 108.09 25°C mm 25°C 0.01093 o 30 mm 91.97 5 t<sub>e</sub> 1436.96 5 ВP 78.36 5 m' to 1 Density g/ml 20°C 5 te (d, e) 74.97 n' •ĸ 5 1,18036 1 74.62 01 25 1.17630  $d_4^t$ 1 AHV/T 5 20.91 30 1.17224 4 Surface tension 153 to d 111.61 5 1,19660 4 285 °C 20 to 153 °C . dynes/cm. 20°C 43.28 0.1283 5 Ъ -0.03812 4 30 42.08 4 111.23 5 e¹ 40 40.94 4 Ref. Index 0.1258 1.54865 20°C [P] n<sub>D</sub> 1 Parachor d<sub>c</sub> g/ml 1.54670 25 20°C vc tc ml/g 30 1.54475 4 30 ·c 40 "C" 0.59411 4 P<sub>c</sub> mm 340.3 5 Sugd. MR (Obs.) 42.181 PV/RT Exp. L.1.%/wt. MR (Calc.) (nD-d/2) 41.935 1.0000 5 25°C u. 0.95847 4 30 mm 1 0000 5 Dispersion 0.9400 Dielectric RP 5 Flash Point °C 7.42043 2039.0 te 0.9198 T 153 to 1 Fire Point tc L400 °C 1 M Spec. C 190. AHc kcal/m 1 Ultra V ΔHf 1.89572 A\* | 153 to 5 X-Ray Dif. ΔFf B+ \_300 °C 1937.82 Infrared ĸ Viscosity Solubility in centistokes Acetone to Carbon tet. •c Benzene 20 to 7.73226 Ether 2258.57 \_1<u>53</u> ℃ n-Heptane ВŸ 208. to Ethanol ĀV | A1# 20 to •c Water 2.22051 Water in B'# 153 °C 2156.76 (BV) to Ac | to (AV) °C Bc | •c cp liq. •ĸ Cc Cryos. A. •ĸ c<sub>p</sub> vap. consts. B° c, vap. f° .C 288,30 5 grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: Dow **PURIFICATION:** Distillation LITERATURE REFERENCES:

No. 1 Acetophenone NAME STRUCTURAL FORMULA COCHS Methyl phenyl ketone Molecular C8H8O Mole Ref. Molecular Weight 124.176 % Pur. Ref. Ref. Ref. 19.655 3 F.P. \*C F.P. 100% dt/dP f to °C/mm 25°C ١ ۰ĸ g 36.06 5 B. P. \*C h 0.05385 BP 760 mm 202.0 3 0.03534 5 ſ١ te to 100 133.2 3 g¹ 0.7733 <u>•к</u> 30 102.4 5 30 mm 5 10 78.8 5 h١ ∆Hm cal/g 39.0 5 to m ∆Hv cal/g Pressure ٠ĸ n 25°C 106,23 mm 25°C 0.3715 o 30 mm 97.33 5 1294.2 5 te ВP 83.54 5 m to Density 80.56 te te (d, e) n' •K g/ml 20°C 1.02810 3 5 80.35 ۰' 25 1.02382  $d_4^t$ 3 AHv/T 20.08 5 30 1.01947 3 Surface tension 102 to 111.5 5 1.04522 -0.03856 5 a b dynes/cm. 15°C 40.09 3 \_225 <u>•C</u> 0.1384 5 30 39.15 ă٠ 20 to 109.11 5 40 38.21 102 °C Ref. Index e¹ 0.1150  $\mathbf{n}_{\mathbf{D}}$ 15°C 1.53075 3 [P] Parachor d<sub>c</sub> g/ml 25 1.53423 3 20°C vc ml/g t\_ °C 30 1.53380 4 30 t<sub>c</sub> "C" 40 0.6837 4  $P_c$  mm 5 0 = 18Sugd. 268.9 MR (Obs.) 37.715 4 PV/RT Exp. L.1.%/wt. MR (Calc.) 37.554 5 1.0000 25°C 5 (nD-d/2) 1.02232 1.0000 30 mm Dispersion 0.9498 Dielectric 5 BP Flash Point C 0.9336 te tc A 102 to B 330 °C 7.15738 1723.46 Fire Point M. Spec. 201. C 4 AHc kcal/m Ultra V. ΔHf A\* 102 to 1.55909 5 X-Ray Dif. ΔFf B\* 245 °C 1625.6 Infrared K Viscosity Solubility in centistokes Acetone to •c Carbon tet. Benzene A' | 7,51308 15 to Ether B' 102 °C 1946.1 n-Heptane B<sup>V</sup> A C١ 220. 5 to Ethanol ٠c A1# 20 to 1.92025 Water 5 Water in B'\* 102 °C 1843.8 (B<sup>V</sup>)| to Acl (AV) °C Bc •c c<sub>p</sub> liq. ۰ĸ Cc Cryos. A\* c<sub>p</sub> vap. •ĸ consts. B. c, vap. te °C 225.03 5 grams/100 grams solvent REFERENCES: 1-Dow 2-API 4-Calc, from det. data 5-Calc. by formula 3-Lit. SOURCE: Lit. Lit. **PURIFICATION:** LITERATURE REFERENCES: 3 Timmermans

						No. 2				
NAME	Benzopher	one			STRUCTURAL FORMULA					
	Diphenylk	tone								
Mole % Pur. 99	Ref. Mo	lecul rmul		Molecular Weight 182.2	10					
		Ref.			Ref		Ref.			
F.P. C F.P. 100	47.93	1	dt/dP *C/mm		,	f to to				
B. P. °C 760 mm 100 30 10	305.47 224.45 187.98 159.92 112.73	1 4 5 5 5	50°C BP te 30 mm	11785. 2 0. 06306 0. 03622 0. 9190 22. 2875	5 5 5	h to g'  *K_				
Pressure mm 50°C	0.00932 1525.4	5	ΔHv cal/g 25°C 30 mm BP	107.43 84.13 70.02	5 5 5	m   to o o o	_			
Density g/ml 50°0 dt 55 d4 60	1.0846 1.0805 1.0765	3 3 3	t <sub>e</sub> (d, e)  AHv/T <sub>e</sub> d   190 to	65.91 65.72 19.54	5 5 5	m' to 'K' o' 'K'				
b		<u> </u>	345 °C	106,71 0,1201 111,00	5	dynes/cm. 20°C 30 40				
Ref. Index n <sub>D</sub> 20°0 25 30			d g/ml vc ml/g tc °C	0.1430	5	Parachor [P] 20°C 30				
"C"			P <sub>c</sub> mm			40 Sugd. 415.8	5			
MR (Obs. MR (Calc. (nD-d/2)	) 55.043	5	PV/RT 25°C 30 mm	1.0000 1.0000	5	Exp. L.1.%/wt. u. Dispersion				
A 190 t	0 7. 28937	1 1 1	BP t <sub>e</sub> t <sub>c</sub>	0.9188 0.8922	5	Flash Point °C Fire Point				
A*   190 to B* 355 *	181.	5 5	ΔHc kcal/m ΔHf ΔFf	1556.	3	M Spec. Ultra V. X-Ray Dif. Infrared				
K c t t t t t t t t t t t t t t t t t t	7, 57278	5	Viscosity centistokes 7 60 °C 80 100 120	3.7982 2.4187 1.7016 1.2899	1 1 1 1	Solubility in + Acetone Carbon tet. Benzene Ether n-Heptane				
A'* 25 to B'* 190 *	2.26811	5 5 5	B <sup>V</sup>   70 to A <sup>V</sup>   130 °C (B <sup>V</sup> )   to	947.93 3.69974	4	Ethanol Water 60°C 0.007 Water in 60°C 0.793				
Ac  to Bc tc_ Cc			(A <sup>V</sup> )   °C							
Cryos. A'consts, B'		1	c <sub>p</sub> vap. *K							
t <sub>e</sub> °C	341.31	5	c <sub>v</sub> vap.		L	†grams/100 grams solver	<u></u>			
REFEREN	CES: 1-Dow	2-AI	PI 3-Lit. 4-C	alc, from det	da:	ta 5-Calc, by formula	11			
SOURCE:			ow .							
PURIFICA	TION:	D	istillation							
LITERATURE REFERENCES: 3 J. Chem. Soc. <u>69</u> , 1025 (1896) H. Perkin										

No. 3 p-Chloroacetophenone STRUCTURAL FORMULA NAME CH<sub>3</sub>C = O Molecular C8H7C10 Ref. Molecular Mole % Pur. 98. 45 Weight 154, 593 1 Ref. Ref Ref F.P. \*C F.P. 100% 18.40 dt/dP ſ to \*C/mm 25\*C <u>•K</u> g 193.85 B. P. \*C h ВP 0.05735 237.2 760 mm t<sub>e</sub> 5 0.03568 f tο 100 163.88 4 g' <u>•K</u> 30 131.05 4 30 mm 0.8255 5 10 5 105.84 h' ∆Hm cal/g 5 63.42 to m ΔHv cal/g Pressure n ٠ĸ 25°C 96.70 mm 25°C 0.06097 ٥ 30 mm 84.82 1384.6 5 t<sub>e</sub> 5 BP 72.29 m' to Density 5 5 te (d, e) 69, 20 n' •K g/ml 20°C 1 1.19224 69.00 o'  $\mathbf{d_{4}^{t}}$ 25 1.18752 AHv/T 19.88 5 30 1.18280 Surface tension d 131 100,30 5 to a 1.21072 1 dynes/cm, 20°C 29.43 1 265 5 0.1181 ᇷᅱ <u>•c</u> ь -0.03924 30 28.50 5 to 25 99.51 40 27.64 Ref. Index e' | 131 •c 0.1120 5 n<sub>D</sub> 20°C 1.55498 [P] Parachor d<sub>c</sub> g/ml v<sub>c</sub> ml/g t<sub>c</sub> °C 25 1.55283 20°C 30 1.55022 4 30 <sup>t</sup>c "C" 40 0.60835 1  $P_c$  mm Sugd. 5 302.0 MR (Obs.) MR (Calc.) 41.617 PV/RT Exp. L.1.%/wt. 40.421 25°C 1.0000 5 (nD-d/2) 0.95886 4 30 mm 1.0000 Dispersion Dielectric 0.9447 BP Flash Point C 0.9246 A 131 to t<sub>e</sub> 7.17747 Fire Point B (350 °C 1852.9 M. Spec. AHc kcal/m 194. 1 Ultra V. ΔHf A\* 131 to 1.65578 X-Ray Dif. ΔFf B\* 275 °C 1752.4 Infrared Viscosity Solubility in centistokes Acetone to Carbon tet. •c ليع Benzene A' | 25 to 7.49315 Ether B' 131 °C 2063.8 n-Heptane B<sup>V</sup> I 212. Ethanol to •c A1# 25 to Water 1.98545 Water in B'\* 131 °C 1962.5 (BV) to Acl (A<sup>V</sup>)| •c Bc tc c<sub>p</sub> liq. •ĸ Cc Cryos. Aº cp vap. •ĸ consts, B° c, vap. f .C 265,08 grams/100 grams solvent 2-API 3-Lit. 5-Calc. by formula REFERENCES: 1-Dow 4-Calc. from det. data SOURCE: Dow **PURIFICATION:** Distillation LITERATURE REFERENCES:

No. 4 NAME Propiophenone STRUCTURAL FORMULA Ethyl phenyl ketone COC2H5 Molecular C9H10O Molecular Ref. Mole % Pur. 99.57 Weight 134,170 Formula Ref. Ref Ref. F.P. C 18.61 1 dt/dP f to \*C/mm g °K 25°C 80.74 B, P. °C h 0.05479 ВP 760 mm 217.48 1 0.03496 5 ſ to 100 147.30 5 g' °K 30 115.83 5 30 mm 0.79187 5 10 91.63 h! AHm cal/g 50.85 5 to ΔHv cal/g m Pressure °K n 25°C 105.1 mm 25°C 0.15519 o 30 mm 94.36 5 1338.4 5 te ВP 81.01 5 to m Density g/ml 20°C 1 77.93 5 5 te te (d, e) •ĸ 'n 1.00962 77.73 0 25 30  $d_4^t$ 1.00531 ΔHv/T 20,28 5 1,0001 4 Surface tension 115 109.56 to 1.02686 dynes/cm. 30°C 36, 42 ١ •c 0.1313 5 242 25 h -0.03862 40 35.21 108.06 .C 1 50 34.16 ı e' Ref. Index 115 0.1183 [P] 20°C 1.52684 Parachor  $^{n}D$ d<sub>c</sub> g/ml 25 330.9 1.52450 30°C vc tc ml/g 30 1.52197 4 40 329.3 4 •c 329.8 50 4 "C" 0.6842 1 P<sub>c</sub> mm Sugd. 331.1 5 MR (Obs.) 40.845 PV/RT Exp. L. 1. %/wt. MR (Calc.) 40.172 25°C 1.0000 5 (nD-d/2)1.02203 4 30 mm 1.0000 5 Dispersion Dielectric BP 0.9500 5 Flash Point °C 0.9329 A 115 to 7, 21435 Fire Point 1800.5 t<sub>c</sub> B 1350 °C M Spec. С 198. 5 AHc kcal/m Ultra V ΔHf A\* | 115 to 1.63632 X-Ray Dif. **AFf** B+ 252 °C 1699.8 Infrared Viscosity Solubility in c centistokes Acetone tō Carbon tet. •c Benzene A' 25 to 7.54342 Ether 115 °C 2012.9 n-Heptane ВŸ C' 216. 5 Ethanol ÃV i A<sup>1</sup>\* 25 to B<sup>1</sup>\* 115 °C •c Water 0.0075 1 1.97979 5 Water in (BV) 1911.3 to Acl (AV) to °C Bc •c cp liq. •ĸ Cc Cryos. A\* c<sub>p</sub> vap. ۰ĸ consts. B° c<sub>v</sub> vap. te °C 242.5 5 grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det, data 5-Calc, by formula SOURCE: Dow, Lit. PURIFICATION: Distillation, Lit. LITERATURE REFERENCES: 3 Jr. Chem. Soc. (London) 1948, p. 607, A. I. Vogel

NAME	Methyl ben	zoate	:		STRUCTURAL FORMULA				
			CO2 CH3						
Mole % Pur. 99	Ref. Mo	lecul.		Molecular Weight 136,14	44				
		Ref		T	Ref.		Ref.		
F. P. °C	-12.38	1	dt/dP		-	f to	1		
F.P. 1009		ĖТ	°C/mm	l .		f to to <u>*K</u>			
B. P. *C			25°C	33.56	5	h			
760 mm	199.35	1	BP t	0.05371	5	f' to			
100 30	130.9	4 4	t <sub>e</sub> 30 mm	0.7642	4	g'K			
10	77.1	4	ΔHm cal/g	17.09	4	h'			
11	38.0	5		11.07	-	m to			
Pressure	0.3044	ا ۔ ا	ΔHv cal/g 25°C	98.03	5	n  •K			
mm 25°C	0.3944 1295.	5	30 mm	88.89	5	0			
Density	+	H	BP	75.81 73.15	5	m' to			
g/ml 20°0	1.08854	1	te te (d, e)	72.77	5	n' _ <u>*K</u>			
d <sub>4</sub> 25 30	1.08377	1 4	AHv/Te	20.10	5		<u> </u>		
JU	1, 10762	4	d 100 to	102.17	5	Surface tension	1.		
b	-0.03954	4	_e_!_2 <u>10                                    </u>	0.1322	5	dynes/cm. 20°C 37.90 30 36.64	1 1		
Ref. Index		П	d'   25 to	101.06	5	40 35.48	i		
n <sub>D</sub> 20°0	1.51679	1	d <sub>c</sub> g/ml	0.37	5	Parachor [P]			
25	1.51457	1 1	vc ml/g	2.71	5	20°C 310.3 30 310.4	4		
"C"	1.30270	ŀ∸	v <sub>c</sub> ml/g t <sub>c</sub> °C	438.	5	30   310.4 40   310.7	4		
MR (Obs.	37, 825	4	P <sub>c</sub> mm	30000.	5	Sugd. 310.9	5		
MR (Calc.		5	PV/RT			Exp. L.1.%/wt.			
(nD-d/2)	0.97252	5	25°C 30 mm	1.0000	5	u. Dispersion			
Dielectric			BP	0.9520	5	Flash Point *C	+		
A 100 to		1	t e	0.9392 0.25	5	Fire Point			
B 1_260°C	1656. 25 195. 23	1	ΔHc kcal/m	0.23	,	M. Spec.	+		
A* 100 to	+	5	ΔHf	1		Ultra V.			
B*  230°C		5	ΔFf			X-Ray Dif. Infrared			
к — — -	_		Viscosity			Solubility in +	+		
t <sub>k</sub> to	-		centistokes 7 20°C	1.8904	1	Acetone			
t <sub>x</sub> °C		1	40	1.3172	1	Carbon tet. Benzene			
A'  25 to		5	60 80	0.9891 0,7838	1 1	Ether			
B' 1_100°C	2 1871.5 213.9	5	BV 30+0	623, 2	4	n-Heptane Ethanol			
A'* 25 to	<del></del>	5	A 1 90°C	2. 12977	4	Water			
B'* 100°C		5	(B <sup>V</sup> )  to	1	l	Water in	┷		
Acl 260 to	7.3186	5	(A <sup>V</sup> )  °C						
Bc tc C	1866.	5	c <sub>p</sub> liq. °K						
Cryos, A	218.7	-							
consts. B		1	c <sub>p</sub> vap. *K		İ				
t <sub>e</sub> °C	222. 37	5	c <sub>v</sub> vap.		Ĺ		$\perp$		
	<del></del>	<u> </u>	DT 2 1 14 4	Cala Car		grams/100 grams solve	nt		
	CES: 1-Dow			Caic. Irom de	t. da	ta 5-Calc. by formula			
SOURCE:		Dov							
PURIFICA	TION: JRE REFERE		tillation						
an ERRI	nd ndreke	140 E.	•						

## TABLE XV. CYCLOPENTANES

NAME	Cyclopentane						$\Box$	STRUCTURAL FORMULA				
Mole % Pur. 99	Ref. Molecular C <sub>5</sub> H <sub>10</sub>				C5H10	Molecular Weight 70,130	d	H <sub>2</sub> C CH <sub>2</sub> H <sub>2</sub> C — CH <sub>2</sub>				
W 1 41. //	. ,0		F 01	Ref	<u> </u>	Weight 10.13	Ref.			<del></del>	Ref	
	_					<del></del>	Kel.				1.61	
F.P. 1007	_	<u>-93.87</u>	9	2	dt/dP *C/mm	1		ſ	to			
	-			-	25 <b>°C</b>	0.07998	4	g	, •K			
B. P. *C 760 mm		49.26		2	BP	0.04003		h				
100		-1.3	-	2	t <sub>e</sub>	0.0359	5	f'	to			
30		-23.55	,	4	30 mm	0.5561	4	g'	' <u>*K</u>			
10 1	ı	-40.4 -68.		4 5	ΔHm cal/g	2,075	2	h'				
	+	-00.		씍	ΔHv cal/g			m	300 to	-0.1231		
Pressure mm 25°C		317.5		4	25°C	97.22	2	n	_600_•K	0.0015		
t <sub>e</sub>		873.3		5	30 mm	105.85	5	لــــــا		-0.0 <sub>6</sub> 46	4	
Density	+			$\vdash$	BP	93.03 92.26	2	m'		-0.0598	4	
g/ml 20°0	c	0.74	5 38	2	te te (d, e)	92.27	5	n' o'	1000 •K		4	
dt 25 4 30		0.74		2	AHV/Te	19.80	5	0.		-0.0 <sub>6</sub> 50	*	
<b>4</b> 30	$\perp$	0.73	549	4	d -25 to	<b>+</b>	5	Sur	face tension			
	-	0.76	527	4			5	dyn	es/cm. 20°C	21.77	5	
ь	-	-0.0	744	4	d'   to		-	•	30 40	20.58 19.42	5	
Ref. Index		1.40	645	2	e'   •C	;		<u> </u>		17. 12	ř	
n <sub>D</sub> 2000	٦	1.40		2	d g/ml vc ml/g t °C	0.270	2	Par	achor [P] 20°C			
30	1	1.40		4	vc ml/g	3.70 238.60	2 2		30			
"C"	T	0.72	64	4	•				40		_	
MR (Obs.	<del>,  </del>	23.13	3	2	P <sub>c</sub> mm	33858.	2			203.5	5	
MR (Calc.		23.09	0	5	PV/RT 25°C	0.0012	4	Exp	. L.1.%/wt.			
(nD-d/2)		1.03	376	2	30 mm	0.9813	5	Dia	u. persion	94.2	2	
Dielectric	20	0° 1.96	5	3	BP	0,9643	4		sh Point *C	-42.0	5	
A -25 to		6.88		2	t <sub>e</sub>	0.9606	5		e Point	-42.0		
B (110 °C		124.16		2	tc	0.276	2	М.	Spec.		_	
c	_	231.36		2	ΔHc kcal/m ΔHf	740, 79 -25, 30	2		ra V.			
A*  -25 to B*  70 °C		1.17	294	4	ΔFf	8.70	2		lay Dif.	l	١.	
K C	<u>-</u>  '	20.		5	Viscosity	1		<b></b>	ared	1161.	1	
c	_	-0.09	169	4	centistokes				ubility in Tectore			
t <sub>k</sub> to		92. 290.		4 5	η -10 °C		2		rbon tet.	ec ec		
- X		290.		Ľ	20	0.726 0.589	2 2	Be	nzene	<b>60</b>		
A'   to				il	40	0.490	2		her	<b>80</b>		
č, ' <del>`</del>	-				B <sub>v</sub> -10 to	365,24	4		Heptane hanol	oc oc		
A1+ to	7				A   50 °C			W	ater	-		
B'+ *(				1	(B <sup>V</sup> )  to	1		W	ater in		<u> </u>	
Ac 110 to		7,41	293	4	(A <sup>V</sup> )  •c					1		
Bc tc *C	<u>:</u>  1	512.9		4	c <sub>p</sub> liq. •K		$\Box$			1	1	
Cc — -	-	286.1		4		1		1			l	
Cryos, A consts, B		0.00	228	2	c <sub>p</sub> vap.300°K	0.28490 0.40268						
t <sub>e</sub> °C		53.56	•	5	c <sub>v</sub> vap.							
$T_{\mathbf{R}} = 0$ .									rams/100 gra		t	
REFEREN	CES	S: 1-E			PI 3-Lit. 4	-Calc, from de	t. da	ta 5	-Calc. by for	mula		
SOURCE: API												
PURIFICATION: API												
LITERATI	JRE	REF	ER E	NCES	S: 3 NBS Cir	rc, 514						

No. 2 STRUCTURAL FORMULA NAME Methylcyclopentane H2C - CH2 H2C - CH2 Molecular C6H12 Ref. Molecular Mole Weight 84.156 % Pur Formula Ref Ref Ref. F.P. C F.P. 100% -142.455 2 dt/dP f to °C/mm g <u>°K</u> 1 25°C 0.1678 B, P. °C h ВP 0.04274 2 760 mm 71.812 2 f 0.0366 5 to 100 17.86 g' •ĸ 30 -5,82 4 30 mm 0.59195 4 10 -23.7 4 h' AHm cal/g 19.678 2 5 1 -53.2 300 to -0.0879 m ΔHv cal/g Pressure 0.0015 n \_600 **°K** 25°C 89.83 mm 25°C 137.5 0 -0.0649 30 mm 95.06 5 5 927.6 te BP 82.18 2 700 to -0.0078 m¹ 4 Density g/ml 20°C te te (d, e) 81.11 5 0.0013 n' 1000 K 0.74864 2 5 81.08 ٥' -0.0647 4 25  $\mathbf{d_4^t}$ 0.74394 AHV/T 19.41 5 30 0.73922 Surface tension -5 to 94.10 5 0.76748 -0.0<sub>3</sub>92 21.60 20.50 19.43 a b dynes/cm. 20°C <u>•c</u> \_75 0.1659 4 30 5 ă۰ to C 40 5 e¹ Ref. Index 1.40970 20°C [P]  $\mathbf{n}_{\mathbf{D}}$ Parachor 0.264 d<sub>c</sub> g/ml 2 1.40700 25 2 20°C vc ml/g tc °C 30 1.40425 4 30 259.61 2 40 "C" 0.7287 4 P<sub>c</sub> mm 5 28394. 2 Sugd. 242.5 MR (Obs.) 27.833 2 PV/RT Exp. L.1.%/wt. 27.708 5 MR (Calc.) 25°C 30 mm 0.9881 4 (nD-d/2) 1.03538 2 1,0000 5 Dispersion 96.1 2 Dielectric 20° 1.985 3 BP 0.9540 Flash Point °C -25.0 5 0.9482 5 A -5 to 6.86283 2 Fire Point 0.273 2 1186.059 tc B 125°C 2 M Spec. С 226.042 2 AHc kcal/m 885,60 2 Ultra V ΔHf -33.07 2 A+ 1.21951 -5 to 4 X-Ray Dif. ΔFf 7.53 B\*| 2 1109.8 90 °C Infrared 1 1162. ĸ 20. Viscosity Solubility in -0.08702 c 4 centistokes Acetone 97. to 4 20 0.677 Carbon tet. •c 312.8 5 40 0.555 Benzene œ 60 0.464 2 A' I to Ether 00 2 70 <u>•с</u> 0.428 В' n-Heptane œ C١ -20 Ethanol 390.17 œ A | 30 •c Z. 49985 4 Water Ai+ to (BV) 30 Water in B'\* ·c 404.34 4 to Viscosity Ac | 125 to 7.34080 (A<sup>V</sup>)| 80 ٠c Z. 45329 4 centistokes Bc tc\_C 1546.9 liq. 0.960 Сp -10°C ۰ĸ 2 Cc 276.1 0 0.847 2 Cryos. A. 0.04878 cp vap.300°K 2 0.31442 2 consts. B° 0.00462 0.42908 c, vap. te C 78.43  $T_{\mathbf{R}} = 0.75 \, T_{\mathbf{c}}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det. data 5-Calc, by formula API SOURCE: PURIFICATION: API LITERATURE REFERENCES: 3 NBS Circ. 514

NAME	Eth	ylc <b>yc</b> l	open	tane			STRUCTURAL FORMULA				
Mole % Pur. 99	. 95 Ref		leculi mula		Molecular Weight 98.182		H-C-C H2G — C H2C — C				
70 Fur. //	. /3   -	FOI			Weight 70.102		<del>r</del>		In .		
			Ref.		<del></del>	Ref.			Ref		
F.P. °C	-138.4	46	2	dt/dP			f to		1		
F.P. 1009	•		$\sqcup$	*C/mm	0.505/	١. ١	g ' <u>*K</u>		1		
B. P. *C			i I	25°C BP	0.5056 0.04623	2	h		l		
760 mm	103.4		2 2	t	0.0364	5	f'   to				
100 30	45.0 19.3		4	30 mm	0.6423	4	g' K		ļ		
10	-0.0		4		0.0423		h'		1		
1	-32.		5	ΔHm cal/g		Ш	<u> </u>	-0.2309	1		
Pressure				ΔHv cal/g			m   300 to	0.0023			
mm 25°C	39.9	3	4	25°C	88.81 89.90	2 5		-0.0515			
t <sub>e</sub>	1034.		5	30 mm BP	78, 58	2			+-		
Density				t.	77.06	5	m' 700 to	0.0098			
g/ml 20°0		6647	2	te (d, e)	77.07	5	n' 1000 •K	0.0013 -0.0 <sub>6</sub> 45	12		
d <sup>t</sup> 25 4 30		6217	2	AHv/Te	19.51	5		-0.064.	1.		
4 30	<del></del>	5786	4	d 20 to	92,51	5	Surface tension		ì		
<b>a</b>		8366	4 4	1_15 °C	0,1346	5	dynes/cm. 20°C	23.30	5		
	-0.0	305	-	d'  to	ì		8 30 40	22.26	5		
Ref. Index		1001	١, ١	e'   °C				21.23	⊬		
<sup>n</sup> D 20°0		1981 1730	2	d <sub>c</sub> g/ml	0.262	2	Parachor [P] 20°C		ł		
30		1483	4	V mi/g	3.817	2	30		ì		
"C"	0.7	283	4	1 -	296.30	2	40		ł		
				P <sub>c</sub> mm	25483.	2	Sugd.	281.5	5		
MR (Obs. MR (Calc.			2 5	PV/RT			Exp. L.1.%/wt.		1		
(nD-d/2)		3657	2	25°C	0.9963	4	u.				
Dielectric	2.0	16	5	30 mm BP	1.0000 0.9661	5 4	Dispersion	95.4	2		
A 20 to		8709	2		0.9580	5	Flash Point C	-1.0	5		
B 1155 °C			2	te t	0.269	2	Fire Point		Ļ.,		
c '	220.6		2	AHc kcal/m	1032.57	2	M. Spec.		1		
A* 20 to	1.2	5274	4	ΔHf	-39.10	2	Ultra V. X-Ray Dif.				
B* 125 °C			4	ΔFf	8.91	2	Infrared	Yes	2		
ĸ	-		1	Viscosity	1	1	Solubility in +	<del></del>	+		
t, to	-1			centistokes 7 20 °C	0.740	2	Acetone	<b>o</b> o	1		
к,			ļ .	7 20 °C	0.608	2	Carbon tet.	<b>80</b>	ł		
A' to			<del>                                     </del>	60	0.513	2	Benzene	∞			
B' •				70	0.474	2	Ether n-Heptane	90 90	i		
c'	-			B <sub>v</sub> -20 to	387.70	4	Ethanol	- w	İ		
A'+ to				A   30 °C	Z. 54691	4	Water		l		
B'* *(	: ]		i	(BV) 30 to	387.39	4	Water in		↓		
Ac   155 to		3306	4	(A <sup>V</sup> )  80 °C	2.54701	4	Viscosity	•			
Bc tc *C	1654.1		4			1	centistokes				
_Cc	268.9		4	P			-10°C	1.047	2		
Cryos. A consts. B		4553	2	c <sub>p</sub> vap.300K 400	0.32338 0.44703		0	0.924	2		
t <sub>e</sub> °C	114.6	5	5	c <sub>v</sub> vap.		<u>L</u>		L	$\perp$		
$T_{\mathbf{R}} = 0$ .							grams/100 gra		nt		
REFEREN	CES: 1-	Dow	2-A	PI 3-Lit. 4	Calc. from de	t. da	ta 5-Calc, by for	mula			
SOURCE:			API								
PURIFICA	TION:		API								
LITERATI	JRE REI	FERE	NCE	S:							

No. 4 NAME l, l-Dimethylcyclopentane STRUCTURAL FORMULA H<sub>3</sub>C<sub>>C</sub>-CH<sub>3</sub> H<sub>2</sub>C CH<sub>2</sub> H<sub>2</sub>C -CH<sub>2</sub> Molecular C7H14 Molecular Ref. Mole % Pur. 99.97 Weight 98,182 Formula Ref Ref Ref. F.P. \*C -69.795 2 dt/dP f to °C/mm •ĸ g 25°C 0.2869 B. P. °C h BP 0.04497 2 760 mm 87.846 2 ſ 0.0369 5 to 100 31.202 g' •ĸ 30 6.4148 4 30 mm 0.6191 4 10 -12.31 4 h' AHm cal/g 5 1 -43.1300 to -0.0773 ΔHv cal/g Pressure n 600 °K 0.0015 25°C 82.29 2 mm 25°C 75.69 4 0 -0.0647 4 30 mm 5 t<sub>e</sub> 981. 85.21 5 BP 73.73 2 700 to 0.0221 m' Density g/ml 20°C t<sub>e</sub> (d, e) 72.48 0.0013 11000 °K 4 'n 0.75448 2 72.47 5 o١ -0.0<sub>6</sub>46 4  $\mathbf{d_4^t}$ 25 0.74991 2 ΔHv/T 19.23 5 30 0.74533 4 Surface tension 700 €C d 86.11 0.77276 -0.0<sub>3</sub>90 5 dynes/cm. 20°C 21.86 0.1409 Ъ 4 30 á 20.80 5 5 to 40 19.76 Ref. Index •' n<sub>D</sub> 20°C 1.41356 2 P Parachor d<sub>c</sub> g/ml 0.28 2 25 1.41091 2 20°C tc °C 3.57 2 30 1.40823 4 30 277. 40 "C" 0.7295 4 P<sub>c</sub> mm 26600. 2 Sugd 281.5 5 MR (Obs.) 32.489 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 32, 326 25°C 0.9935 (nD-d/2) 1.03632 2 30 mm 1,0000 Dispersion 97.2 2 1.998 5 Dielectric BP 0.9599 4 Flash Point °C -12. 5 0.9527 T 0 to 5 6.81724 t<sub>e</sub> 2 Fire Point 0.27 2 B 1140 °C 1219.474 M Spec. Yes 1 C 221.946 2 AHc kcal/m 1029.89 2 Ultra V. AHf 1.21309 -41.14 2 A\*| 0 to X-Ray Dif. ΔFf 7.96 2 B\* 110 °C 1138.47 Yes 2 Infrared Viscosity Solubility in c centistokes Acetone •c •c Carbon tet. 00 Bensene to Ether 00 B١ •C n-Heptane 80 C' to Ethanol 00 Ã۷ •c Water AI+ to (BV) Water in B'+ ·c to Ac | 140 to (AV) 7.61456 4 •c Bc \_tc\_ •c 1863.9 cp liq. °K 307.3 cp vap.300°K Cryos. A\* 0.00314 2 0.32755 2 consts. B. 0.44356 400 c, vap. te °C 96.81 5  $T_R = 0.75 T_C$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

NAME		cis-	1, 2-1	Dime	thylcyclopentan	e	-	STRUCTURAL FORMULA				
Mole % Pur.	9. 99	Ref.		eculi		Molecular Weight 98,182	2	H2C H2C H2C —	CHCH <sub>3</sub> CH <sub>2</sub>			
				Ref.			Ref.			Re		
F, P. *C		-53, 89	96	2	dt/dP			f to	-			
F.P. 100					*C/mm			g  K	: [			
B. P. *C	1				25 <b>°</b> C	0.4355	4	h i	7	1		
760 mm		99.5		2	BP	0.04603 0.0366	5		1	t		
·1 <b>0</b> 0		41.40		2	t <sub>e</sub>	1	4	g' to		ı		
30 10		16.00		4 4	30 mm	0.6364	1	h'	-1			
1	Ι.	-34.9		5	ΔHm cal/g	<u> </u>				╀		
Pressure	+				ΔHv cal/g			m   300 to				
mm 25°C		47.24	42	4	25°C	87.07	2	n   _600_•F	0.0015 -0.0 <sub>6</sub> 49			
te	10	020.		5	30 mm BP	88.66 77.16	5 2		10.06.7	┺		
Density	$\top$				t.	75.70	5	m¹ 700 to				
g/ml 20°	c		7262	2	t (d, e)	75.69	5	n'   11000 <u>*</u> F				
dt 25 4 30			6807	2	ΔHv/T <sub>e</sub>	19.39	5		-0.0646	Ľ		
4 30			6351	4	d 10 to	90.86	5	Surface tension	1	ŀ		
			9080	4		0.1377	5	dynes/cm. 20°C				
ь	-	-0.0	390	4	1 to	1		30 40	22.93			
Ref. Inde:				ا ۽ ا	e'	<u> </u>			21.83	1		
<sup>n</sup> D 20°	٦		2217 1963	2 2	d <sub>c</sub> g/ml	0.27	2	Parachor [P] 20°C	1			
30	- 1		1691	4	l v mi/g	3.70	2	30	i			
"C"	+	0.7		4		292.	2	40				
	+			-	P <sub>c</sub> mm	25840.	2	Sugd	. 281.5			
MR (Obs. MR (Calc		32.30 32.32		2	PV/RT			Exp. L.1.%/wt.				
(nD-d/2)	''		3586	l ž l	25°C	0.9957	4	u.		1		
Dielectric	. + -	2.0		5	30 mm BP	1.0000	5 4	Dispersion	97.3	Ŀ		
A 10 to	_				t <sub>e</sub>	0.9646 0.9566	5	Flash Point C	-4.0			
B (150 °C		6.81 269.14	5008	2 2	t c	0.27	2	Fire Point	1	╀		
c (323		220.2		2	AHc kcal/m	1031.98	2	M. Spec.	Yes	ł		
A* 10 to	$\top$	1 2	2418	4	ΔHf	-39.52	2	Ultra V. X-Ray Dif.				
B* 120 °C		183,6		4	ΔFf	9.29	2	Infrared	Yes	1.		
K	_			1 1	Viscosity	ł		Solubility in +	<del> </del>	+		
t, to	_				centistokes 7 °C	1		Acetone	- m	1		
					7 °C			Carbon tet.	••			
A'  to	—			Н	1		l .	Benzene	••			
B' 'C				1 1		ļ	$\perp$	Ether n-Heptane	00 00	1		
c, '— —	-				B <sup>V</sup> to A <sup>V</sup> C			Ethanol				
A1# to	,						1	Water	ì			
B'+ *	:				(B <sup>V</sup> )  to			Water in	<b></b>	+		
Ac   150 to	,	7.4	4124	4	(A <sup>V</sup> )  •c				1			
Bc tc	C   1	745.6		4		<b></b>	<b>†</b>			ı		
Cc		284.3		4	P					1		
Cryos. A consts. B		0.0	0415	2	c <sub>p</sub> vap 300°K 400	0.32939 0.44479				١		
t <sub>e</sub> °C		110.1	8	5	c <sub>v</sub> vap.	1						
$T_R = 0.$	75 T	c						† grams/100 gr	ams solve	nt		
REFEREN	CES	: 1-1	Dow	2-A	PI 3-Lit. 4-	Calc. from de	t. da	ta 5-Calc. by fo	rmula			
SOURCE:				AF	PI							
PURIFICA	TIO	N:		AF	PI							
LITERAT			ED E							-		
LIIERAI	URE	REF	ERE.	NCE	<b>.</b>							

No. 6 STRUCTURAL FORMULA NAME trans-1, 2-Dimethylcyclopentane HC-CH3 H2C CHCH3 H2C — CH2 Molecular C7H14 Ref. Molecular Weight 98,182 Mole % Pur. 99.97 Formula Ref Ref. Ref. -117.58 F.P. \*C F.P. 100% 2 dt/dP f to \*C/mm g <u>•</u>K 1 25°C 0.3321 B. P. \*C h BP 0.04521 2 91.869 760 mm 2 0.0367 5 f ź 100 34.856 to g' \_K 30 9.86 4 30 mm 0,6245 4 10 -9.0 2 h' ∆Hm cal/g -40.1 4 -0.0720 300 to ΔHv cal/g m Pressure 600 °K n 0.0015 4 25°C 84.12 mm 25°C 64,039 o -0.0648 4 30 mm 86.55 5 994. 5 te BP 75.12 2 700 to 0.0530 m' Density te te (d, e) 73.80 5 1000 °K 0.0012 g/ml 20°C 0.75144 'n 2 73.79 5 01 -0.0642 4 25  $\mathbf{d_4^t}$ 0.74686 2 AHV/T 5 30 19.34 0.74227 4 Surface tension 10 to 87.93 0.76975 -0.0<sub>3</sub>90 \_100 €C a b 4 dynes/cm. 20°C 21.51 0.1394 30 20.47 19.44 ď٠ 40 5 e¹ Ref. Index 1.41200 20°C [P]  $\mathbf{n}_{\mathbf{D}}$ Parachor d<sub>c</sub> g/ml 2 0.27 25 1.40941 2 20°C vc ml/g tc °C 3.70 30 1.40667 4 30 2 282. 40 "C" 0.7298 4 P<sub>c</sub> mm 25840. 2 281.5 5 Sugd MR (Obs.) 32,511 2 PV/RT Exp. L. l. %/wt. MR (Calc.) 32, 326 25°C 0.9944 4 (nD-d/2) 1.03628 2 30 mm 1.0000 2 5 Dispersion 96.4 Dielectric 1.994 5 BP 0.9616 Flash Point °C -10.0 5 te 0.9541 5 0 to 6.84422 2 Fire Point 0.27 2 t<sub>c</sub> B 1145 °C 1242.748 2 M Spec. Ultra V Yes 1 c 221.686 2 AHc kcal/m 1030,27 2 A\* 0 to B\* 110 °C ΔHf -40.94 2 1,23203 4 X-Ray Dif. ΔFf 7.70 2 1159.99 2 Infrared Yes ĸ Viscosity Solubility in c centistokes Acetone 00 to t<sub>x</sub> Carbon tet. ٠ċ 00 Benzene 00 to Ether œ B١ <u>•с</u> n-Heptane 00 ВŸ C١ Ethanol œ ÃV I •c Water A'+ to (BV) Water in B'\* •c to Ac | 145 to (AV) 7.36128 °C •c Bc \_tc\_ 1648.7 cp liq. °K Cc 277.1 0.03202 Cryos. A\* c<sub>p</sub> vap.300°K 2 0.33041 2 consts. B° 0.003 2 0.44519 c, vap. te °C 101.38  $T_{\mathbf{R}} = 0.75 \, T_{\mathbf{c}}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det. data 5-Calc, by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

NAME	cis-1,3-	Dime	ethylcyclopentan		STRUCTURAL FORMULA  H2C CHCH3 CH2				
Mole % Pur.	Ref. Mo	lecula mula		Molecular Veight 98.18	12	H <sub>2</sub> C — C	HCH3		
		Ref			Ref.			Ref.	
F.P. *C F.P. 100%	-133, 975	2	dt/dP °C/mm			f to			
B. P. *C 760 mm 100 30 10	91.725 34.679 9.68 -9.2	2 2 4 4	25°C BP te 30 mm  AHm cal/g	0.3298 0.04525 0.0367 0.6246	4 2 5 4	h   to   to   h'			
Pressure mm 25°C t <sub>e</sub>	-40.3 64.58 994.	5 4 5	AHv cal/g 25°C 30 mm BP	84.01 86.44 74.97	2 5 2	m   300 to n   600 °K o   700 to	-0.0720 0.0015 -0.0 <sub>6</sub> 48	4	
Density g/ml 20°C dt 25 4 30	0, 74435 0, 73989	2 2 4	t <sub>e</sub> (d, e) ΔHv/T <sub>e</sub>	73.65 73.64 19.31	5 5 5	m' 700 to n' 1000 K o' Surface tension	0.0530 0.0012 -0.0 <sub>6</sub> 42	4	
a b Ref. Index	0.76659 -0.0 <sub>3</sub> 88	4	d 10 to e 10 *C to e'   *C	87.79 0.1398	5	dynes/cm. 20°C 30 40	21.21 20.20 19.22	5 5 5	
n <sub>D</sub> 20°C	1.41074 1.40813 1.40555	2 2 4	d g/ml vc ml/g tc °C	0.27 3.70 282.	2 2 2	Parachor [P] 20°C 30 40			
"C"	0.7303	4	P <sub>c</sub> mm	25840.	2		281.5	5	
MR (Obs.) MR (Calc. (nD-d/2)		2 5 2	PV/RT 25°C 30 mm	0.9948 1.0000	4 5	Exp. L.1.%/wt. u. Dispersion	96.1	2	
Dielectric  A 10 to B   145 °C		5 2 2	BP te tc	0.9613 0.9538 0.27	4 5 2	Flash Point C Fire Point	-10.0	5.	
A* 10 to	1.22680	2	ΔHc kcal/m ΔHf ΔFf	1031.00 -40.19 8.45	2 2 2	M. Spec. Ultra V. X-Ray Dif.	Yes	1	
B* 110 °C K c t <sub>k</sub> to t <sub>x</sub> c To C C C C C C C C C C C C C C C C C C	-	4	Viscosity centistokes  7 °C			Infrared Solubility in  Acetone Carbon tet. Benzene Ether n-Heptane Ethanol	60 60 60 60		
A'* to B'* °C			$\frac{A^{V}}{(B^{V}) } - \frac{{}^{\bullet}C}{to}$			Water in	<b>80</b>		
Acl 145 to Bc t <sub>c</sub> °C Cc	7.21251 1528.2 261.8	4 4 4	(A <sup>V</sup> )  °C c <sub>p</sub> liq. °K						
Cryos. A <sup>e</sup> consts. B <sup>e</sup>		2	c <sub>p</sub> vap.300°K 400	0.33041 0.44519	2 2				
t, *C	101.22	5	c <sub>v</sub> vap.	1		L	l	<u> </u>	
$T_R = 0.7$						grams/100 gra		ıt	
REFEREN	CES: 1-Dow			Calc. from de	t. da	ta 5-Calc. by for	mula		
SOURCE:			PI						
PURIFICA	TION:	Ā	PI						
LITERATU	JRE REFERE	NCE	5:						

No. 8 STRUCTURAL FORMULA NAME trans-1, 3-Dimethylcyclopentane H2C — CHCH3 H2C — CHCH3 Molecular C7H14 Molecular Mole Ref. Weight 98.182 % Pur. 99.65 Formula Ref Ref. -133.702 2 F, P. dt/dP f to F.P. 100% °C/mm g \_ <u>\*</u>K ١ 25°C 0.3187 B. P. °C h ΒP 0.04518 2 760 mm 90.773 2 t<sub>e</sub> 0.0368 5 ſ to 100 33,818 2 ١ g' •K 30 8.862 4 30 mm 0.6235 4 10 -10.0 4 h١ AHm cal/g -41. 5 300 to -0.0720 ΔHv cal/g m Pressure 600 °K 0,0015 n 25°C 83.52 2 mm 25°C 67.19 -0.0648 0 4 30 mm 86.08 5 te 990.6 5 ВP 2 74.68 700 to 0.0530 1 Density 73.38 te (d, e) 5 n' 11000 °K 0.0012 g/ml 20°C 0.74479 73.38 5 ۰' -0.0642 4 0.74025 2 25 ΔHv/Te  $d_4^t$ 19.30 5 30 0.73570 4 Surface tension ٦ 87.32 0 to 0.76295 -0.0<sub>3</sub>89 44 dynes/cm. 20°C 20.76 •c 0.1392 100 Ъ 30 19.75 18.76 5 a٠ to Ī •1 40 ·c Ref. Index 20°C 1.40894 [P] 2 n<sub>D</sub> Parachor d<sub>c</sub> g/ml 0.28 2 25 1.40633 2 vc ml/g 20°C 30 3.57 2 1.40369 4 30 282. 2 40 "C" 0.7312 4 P<sub>c</sub> mm 26600. 2 Sugd. 281.5 5 MR (Obs.) 32.587 2 PV/RT Exp. L. l. %/wt. MR (Calc.) (nD-d/2) 5 32.326 0.9941 25°C u. 1.03654 30 mm 1.0000 Dispersion 97.3 2 Dielectric 1.985 5 BP 0.9611 4 Flash Point °C -11.0 5 te 0.9537 5 A 0 to 6.83715 2 Fire Point 0,27 2 t<sub>c</sub> В 1237.456 222.005 1145 °C 2 M Spec. Ultra V 1 Yes C 1030,47 2 AHc kcal/m 2 ΔHf -40.68 7.93 2 A\*| 0 to 1.22690 4 X-Ray Dif. 2 ΔFſ B+ 110 °C 1155.03 Infrared Yes 2 ĸ Viscosity Viscour, centistokes °C Solubility in Acetone to œ ţ ţ Carbon tet. ٠c 00 Bensene œ A۱ to Ether œ B' <u>.c</u> n-Heptane 00 C١ B to Ethanol œ A<sup>V</sup> A'\* •c Water to Water in B'\* •c (BV) to Ac | 145 to 7.48224 (AV) •c Bc \_tc\_ 1753.6 •c cp liq. ٠ĸ Cc 291.5 4 Cryos. A. 0.04575 2 cp vap.300°K 0.33041 consts. B° 0.44519 c, vap. t. °C 100.14 5  $T_{R} = 0.75 T_{c}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API **PURIFICATION:** API LITERATURE REFERENCES:

No. 9 n-Propylcyclopentane NAME STRUCTURAL FORMULA CHC3H7 H2C CH2 H2C - CH2 Ref. Molecular Mole Molecular C8H16 % Pur. 99.997 2 Formula Weight 112,208 Ref. Ref. Ref. -117.340 2 F. P. \*C dt/dP f to F.P. 100% °C/mm ١ •<u>к</u> g 25°C 1.4496 5 B. P. °C h BP 0.04888 2 760 mm 130.949 2 0.0367 f t<sub>e</sub> to 100 69.143 2 g' <u>°к</u> 30 41.94 4 30 mm 0.6805 4 10 21.23 5 h' ∆Hm cal/g 1 5 -13.3300 to -0.1994 m AHv cal/g Pressure 600 K 0.0022 4 87.75 5 25°C mm 25°C 12.379 5 0 -0.0<sub>5</sub>14 4 30 mm 86.15 5 1099. 5 te ΒP 74.01 m' 700 to 0.0290 Density t<sub>e</sub> (d, e) 72.13 5 0.0013 -0.0<sub>6</sub>43 n' g/ml 20°C 1000 -K 0.77633 2 72.06 5 ٥' 25  $d_4^t$ 0.77229 2 AHV/Te 19.34 5 30 0.76825 4 Surface tension  $\top$ 40 91.88 5 to 0.79248 -0.0<sub>3</sub>805 dynes/cm. 20°C 24.17 1<u>45</u> •c 0.1364 5 ь 30 23.17 ă'n to 20 90.12 5 ë' |\_ 40 22,20 5 •c Ref. Index 40 0.0945 5 20°C n<sub>D</sub> 1.42626 Parachor [P] d<sub>c</sub> g/ml 0.269 5 20°C 25 1,42389 vc ml/g tc °C 3.72 5 30 4 30 1.42156 317.1 5 40 "C" 0.7295 4  $P_c$  mm 21023. 5 Sugd. 320.5 5 MR (Obs.) 37.052 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 36.944 1.0000 25°C 5 1.03810 u. (nD-d/2) 2 30 mm 1.0000 95.6 5 Dispersion 2 0.9553 Dielectric 2.034 5 BP 5 Flash Point C 19. 5 t<sub>e</sub> 0.9444 A 40 to 6.90392 2 Fire Point 0.265 5 B 1170 °C 1384.386 2 M. Spec. 1 Yes C 1179,40 2 213.159 2 AHc kcal/m Ultra V. ΔHſ -45.21 2 A\* 40 to 1.31959 5 X-Ray Dif. ΔFſ 10.12 2 B\* 155 °C 1297.41 2 Infrared Yes ĸ Viscosity Solubility in c centistokes Acetone 00 to -20 °C 1.53 2 ŧ<sub>k</sub> [ Carbon tet. ·c 00 0 1.133 2 Benzene 20 0.878 2 A' | 20 to 7,24581 Ether œ 0.711 40 B' L 2 n-Heptane \_4<u>0\_°C</u> 1564.31 90 B<sup>V</sup> | -30 to A<sup>V</sup> | 30 °C C' 229.2 447.66 Ethanol œ Z. 41669 Water A'\* 25 to 1.64286 (BV) 30 to Water in B'\* 40 °C 1466.8 5 375,76 Ac| 170 to 7.3143 (A<sup>V</sup>)| 90 °C 5 Z. 65214 4 Viscosity Bc tc C 1716.3 centistokes cp liq. Сc 256.6 5 60°C 0.597 2 R۸ 0.52 cp vap.300°K Cryos. A. 0.33188 consts. B. 400 0.45300 c, vap. te °C 145.23 5  $T_{R} = 0.75 T_{C}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det. data 5-Calc. by formula API SOURCE: API **PURIFICATION:** LITERATURE REFERENCES:

No. 10 STRUCTURAL FORMULA NAME Isopropylcyclopentane CH-CH(CH3)2 H2C CH2 H2C—CH2 Molecular C8H16 Ref. Molecular Mole Weight 112,208 % Pur Formula Ref. Ref Ref. -111.375 2 F.P. °C F.P. 100% dt/dP ſ to °C/mm g <u>°K</u> 25°C 1,1536 B. P. °C h ΒP 0.04913 2 760 mm 126.419 2 0.0367 5 f to 64.338 100 g' °K 30 37.05 4 30 mm 0.6825 4 10 16.3 5 h١ ∆Hm cal/g -18.4 5 to m ΔHv cal/g Pressure °K n 25°C 84.22 mm 25°C 16,206 o 30 mm 83.25 5 1105. t<sub>e</sub> 5 BP 5 73,00 1 to Density m' te te (d, e) 71.29 5 •ĸ g/ml 20°C n' 0.77653 2 71.33 5 ٥' 25 0.77259  $d_4^t$ 2 ΔHv/Te 5 30 19.31 0.76864 4 Surface tension Т 87.50 40 0.79228 -0.0<sub>3</sub>784 a b dynes/cm. 20°C 24.19 1 •c 0.1147 5 140 4 30 23.22 22.27 25 ŧo to 86.24 5 1 40 5 e¹ Ref. Index 0.0805 40 5 20°C 1,42582 Parachor [P]  $\mathbf{n}_{\mathbf{D}}$ d g/ml vc ml/g tc °C 25 1.42350 20°C 30 1.42124 30 4 312.1 5 40 "C" 0.7286 4 P<sub>c</sub> mm 20568. 5 320.5 5 Sugd. MR (Obs.) 37.011 2 PV/RT Exp. L. 1. %/wt. MR (Calc.) 36.944 1.0000 25°C 5 (nD-d/2) 1,03756 30 mm 1.0000 5 Dispersion 95.5 2 Dielectric 2.033 5 BP 0.9688 4 Flash Point °C 0.9590 A 40 to 6,88622 2 Fire Point 1379.415 t<sub>c</sub> B 1165 °C 2 M Spec. c 2 AHc kcal/m Ultra V ΔHf A\* | 40 to 1.27908 5 X-Ray Dif. ΔFf B+ 150 °C 1284.92 Infrared Viscosity Solubility in c centistokes Acetone to Carbon tet œ •c Benzene œ A' | 10 to 7.22699 1558.70 Ether œ B١ 5 n-Heptane œ B<sup>V</sup> I C' 234.0 Ethanol to 00 •c Water A'\* 15 to 1.62692 5 Water in B'# 40 °C (BV) 1460.16 to Ac | 165 to 7.30422 (AV) 5 °C Bc \_tc\_ 1718.9 •c cp liq. ۰ĸ Cc 262.6 Cryos. A\* c<sub>p</sub> vap. ٩K consts. B° c, vap. te °C 5 140.99  $T_R = 0.75 T_c$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula API SOURCE: PURIFICATION: API LITERATURE REFERENCES:

NAME	l - Ethyl	l - m	ethylcyclopentar	ne	$\exists$	STRUCTURAL FORMULA				
Mole % Pur. 99.	Ref. Mo 2 For	lecul rmula		Molecular Veight 112.2	08	H2C C	`C2H5			
		Ref.			Ref.			Ref.		
F. P. °C	-143.800	2	dt/dP			f to		T		
F. P. 1009	6		°C/mm			g  K				
B. P. *C			25°C	0.9602	5	h i				
760 mm	121.522	2	BP	0.04863	5	<del></del>		+		
100	60, 116	2	t <sub>e</sub>	0.0366	1 1	f' to				
30 10	33.15 12.63	4 5	30 mm	0.6742	4	h'				
l i	-21.6	5	∆Hm cal/g		Ш	<u> </u>		+		
Pressure			ΔHv cal/g			m to		1		
mm 25°C	19,80	5	25°C	82.82	5	"				
t <sub>e</sub>	1094.	5	30 mm BP	82.17 72.12	5			—		
Density			t.	70.48	5	m' to to		1		
g/m1 20°0		2	'e '", ",	70.53	5	n'   L _ <u>*K</u>				
dt 25 4 30	0.77670	2	ΔHv/T <sub>e</sub>	19.35	5			4_		
	0.77246	4	d 35 to	85.94	5	Surface tension				
a b	0.79784 -0.0 <sub>3</sub> 841	4	e 1 135 °C	0.1137	5	dynes/cm. 20°C	24.74	5		
		+-	d' 15 to	84.82	5	40	23.68 22.65	5		
Ref. Index		2	e'   35 °C	0.0800	5	Parachor [P]		+-		
<sup>n</sup> D 20°0	1.42476	2	d <sub>c</sub> g/ml	0.269	5	20°C				
30	1.42239	4	v <sub>c</sub> ml/g t <sub>c</sub> °C	3.717 304.7	5	30				
"C"	0, 7266	4		1	1 1	40 Su ad	220 5			
MR (Obs.		2	P <sub>c</sub> mm	20351.	5		320,5	5		
MR (Calc.	36.944	5	PV/RT 25°C	1.0000	5	Exp. L.1.%/wt.				
(nD-d/2)	1.03672	2	30 mm	1.0000	5	u. Dispersion	95.8	2		
Dielectric	2.037	5	BP	0.9710	4	Flash Point C	75.0	┿		
A 35 to	6.87148	2	t <sub>e</sub>	0.9617	5	Fire Point				
B 1160 °C		2	te	0,228	5	M. Spec.		+		
C	218. 092	2	ΔHc kcal/m ΔHf			Ultra V.		l		
A*  35 to B*  145 °C		5	ΔFf			X-Ray Dif. Infrared				
K	- 1.201.33	_	Viscosity			<u> </u>		+		
° – –	_		centistokes		1	Solubility in TACETONE	œ			
t <sub>k</sub>   to		1	η °C			Carbon tet.	80			
X I		ļ				Benzene	oc			
A'  15 to B'  35 °C		5				Ether	<b>00</b>			
c' - 3 3	233.92	5	B <sub>v</sub> to			n-Heptane Ethanol	ec ec			
A1# 20 to	1,60819	5	A I c			Water	-			
B'* 35 °C		5	(B <sup>V</sup> )  to			Water in		<del> </del>		
Ac  160 to		5	(A <sup>V</sup> )  °C							
Bc tc *C	1689.3	5	c <sub>p</sub> liq. °K							
Cc	262.1	5	{}		1					
Cryos. A consts. B		2	c <sub>p</sub> vap. *K							
t <sub>e</sub> °C	135.53	5	c <sub>v</sub> vap.	<u> </u>	1	L	L	Ц		
$T_{\mathbf{R}} = 0.$	75 T <sub>C</sub>					grams/100 gra	ms solve	nt		
REFEREN	CES: 1-Dow	2 - A	PI 3-Lit. 4-	Calc. from de	et. da	ta 5-Calc. by for	mula			
SOURCE:		AF	·I							
PURIFICA	TION:	AF	) I							
LITERAT	JRE REFERE	NCE	S:							

No. 12 cis-1-Ethyl-2-methylcyclopentane STRUCTURAL FORMULA NAME н<sub>2</sub>Ç СНСН3 Н2Ç СНС2Н5 Н2С—СН2 Molecular C8H16 Molecular Mole Ref. % Pur. 99.97 Weight 112.208 Formula Ref Ref Ref. F.P. C F.P. 100% -105.95 2 dt/dP f °C/mm <u>•</u>K 8 25°C 1.2539 B. P. °C h BP 2 0.04897 760 mm 128,050 2 0.0367 5 f 100 to 66.116 2 g' •ĸ 30 38.86 30 mm 0.6820 4 4 10 18.10 5 h AHm cal/g -16.6 5 to m AHv cal/g <u>•</u>K Pressure n 85.45 84.29 73.**3**1 25°C mm 25°C 14.70 o 30 mm 5 1100. 5 t. BP to Density g/ml 20°C m te (d, e) 71.55 5 •ĸ 0.78522 'n 2 71.54 5 01 25 AHv/T d4 0.78113 5 30 19.32 0.77704 Surface tension 40 to 89.07 5 5 0.80157 -0.0<sub>3</sub>814 a 44 dynes/cm. 20°C 25.29 •c 145 0.1231 30 24.25 •C 20 87.54 40 23, 23 5 Ref. Index •' 40 0.0837 5 20°C  $\mathbf{n}_{D}$ 1.42933 [P] Parachor d<sub>c</sub> g/ml 0.269 5 25 1.42695 20°C vc tc ml/g 3.717 30 1.42459 4 30 ·c 314.7 5 "C" 40 0.7261 4 P<sub>c</sub> mm 21054. 5 5 Sugd 320.5 MR (Obs.) 36,864 2 Exp. L. 1. %/wt. MR (Calc.) 36.944 5 25°C 1.0000 5 (nD-d/2) 1.03672 30 mm 1.0000 2 5 Dispersion 94.6 Dielectric 2.043 5 BP 0.9619 4 Flash Point °C 0.9515 A 40 to 6: 90561 2 Fire Point 0.237 tc 1388.307 1170 °C M Spec. Ultra V. C 216.888 AHc kcal/m ΔHf A\* 40 to B\* 155 °C 1.30956 5 X-Ray Dif. ΔFf 1297.0 Infrared ĸ Viscosity Solubility in c centistokes Acetone to ξ<sub>k</sub> | Carbon tet. œ •c Benzene œ 10 to 7.24761 Ether œ <u> 40 °C</u> 1568.74 n-Heptane œ вv C 233.0 5 Ethanol •c Water AI+ 15 1.64397 5 Water in B'+ 40 °C 1469.65 5 (BV) to Ac | 170 to 7,32203 5 (AV) °C Bc \_\_tc\_\* 1727.1 •c cp liq. 261.3 •ĸ Cc Cryos. A° consts. B° c<sub>p</sub> vap. •ĸ c, vap. te °C 5 142.39  $T_R = 0.75 T_C$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

NAME	trans-l	-Ethy	1-2-methylcycl		STRUCTURAL FORMULA  CHCH3  H2C CHCH3			
Mole % Pur.	Ref. Mo	lecul rmuli		Molecular Weight 112.20	08	H2Ç C H2C C		
		Ref.			Ref.			Ref
F. P. *C			dt/dP					1
F.P. 1009	6	<del>                                     </del>	*C/mm			f to		1
	<del>`</del>	╆	25°C	0.9631	5			1
B. P. *C 760 mm	121.2	2	BP	0.0483	4	h		
100	60.1	2	t <sub>e</sub>	0.0366	5	f' to		
30	33.3	4	30 mm	0.6714	4	g' ' <u>*K</u>		1
10	12.8	5	ΔHm cal/g			h'		
1	-21.2	5	ΔHv cal/g			m to		
Pressure mm 25°C		_	25°C	83.26	5	n•K		
t <sub>e</sub>	19.63 1086.	5	30 mm	82.59	5	٥		
Density	1.000.	<del>  _</del>	BP	72.05	5	m¹ to		$\top$
g/ml 20°0	0,7690	2	te te (d, e)	70.41	5	n'   L•K_		
	0.7649	2	A 12 / TT	1	3	o'		
d <sub>4</sub> 25 30	0.7608	4	ΔHv/T <sub>e</sub>	19.36	5	Surface tension		+
8	0.7854	4	d 35 to	86.57	5	dynes/cm. 20°C	23.27	5
ь	-0.03815	4	d' 135 °C	0.1198 85.31	5	₹ 30	22.28	5
Ref. Index			e' 35 °C	0.0818	5	40	21.32	5
n <sub>D</sub> 20°0	-,,	2	d <sub>c</sub> g/ml	0,263	5	Parachor [P]		
25 30	1.4195	2	∥ v_mi/g	3, 802	5	20°C	ļ	İ
	1.4171	4	tc *C	302.4	5	30 40		1
"C"	0.7293	4	P <sub>c</sub> mm	20207.	5	II .	320.5	5
MR (Obs.		2	PV/RT	<u> </u>	$\vdash$	Exp. L.1.%/wt.		$\top$
MR (Calc. (nD-d/2)	36.944 1.0374	5 2	25°C	1.0000	5	u.		
		-	30 mm	1.0000	5	Dispersion	95.	2
Dielectric	<del></del>	5	BP	0.9660 0.9565	5	Flash Point C		
A 35 to		2 2	t <sub>e</sub>	0, 238	5	Fire Point		
B (160 °C	217.5	2	AHc kcal/m		$\vdash$	M. Spec.		
A* 35 to		5	ΔHf		1	Ultra V.		1
B*  145 °C		5	ΔFf			X-Ray Dif. Infrared	1	
к ——	_		Viscosity			Solubility in +	<del> </del>	+
t, to	-1		centistokes		İ	Acetone	•	1
K'		1	η ·c			Carbon tet.	<b>60</b>	1
A'  15 to		-	1			Benzene	60	
B' 35 °C	1532.2	5		<b>_</b>	—	Ether n-Heptane	sc	1
c'	233.3	5	B <sub>v</sub> to			Ethanol		
A'* 20 to	1,6227	5	LAĽ		1	Water		
B'* 35 °C		5	(B <sup>V</sup> )  to			Water in	<b></b>	
Ac  160 to		5	(A <sup>V</sup> )  °C					
Bc tc Cc	1686.4 260.8	5	c <sub>p</sub> liq. *K					
Cryos. A'	•		c <sub>p</sub> vap. •K					
t <sub>e</sub> °C	134, 83	5	c <sub>v</sub> vap.				ł	
$T_R = 0.$	75 T <sub>c</sub>		****	•	•	grams/100 gra	ms solve	nt
REFEREN	CES: 1-Dow	2-A	PI 3-Lit. 4-	Calc. from de	t. da	ta 5-Calc. by for		
SOURCE:		AP						
PURIFICA	TION:	AP	I	<del></del>				
	JRE REFERE							

No. 14 STRUCTURAL FORMULA cis-l-Ethyl-3-methylcyclopentane NAME H<sub>2</sub>C CH<sup>-</sup> CH<sub>3</sub> нұс--ċнС2 H5 Ref. Molecular Molecular Mole  $C_8 H_{16}$ Formula Weight 112.208 % Pur. Ref. Ref. F, P. dt/dP f to °C/mm F.P. 100% g <u>•K</u> 25°C 0.9734 5 B. P. \*C h BP 0.0483 4 760 mm 121.4 2 0.0366 5 f' to 100 60.3 ŧ, g' <u>•</u>K 30 33,5 4 30 mm 0.6710 10 13.1 5 h' ∆Hm cal/g 5 -21. to m ΔHv cal/g Pressure ۰ĸ n 25°C 83.47 mm 25°C 19.38 a 82.76 5 30 mm 1085. 5 t<sub>e</sub> BP 72.05 5 to 1 Density g/ml 20°C 70.39 5 te (d, e) n' ٠ĸ 0.7724 5 70.39 ٥' 2 25 0.7681 ΔHv/Te  $d_4^t$ 5 19.35 30 0.7638 4 Surface tension ī 35 to 86.85 5 0.7896 -0.03855 8 4 dynes/cm. 20°C 23.68 135 •c 0.1219 5 Ъ 4 30 22.64 5 i S 715 85.54 40 21.62 5 Ref. Index e¹ 0.0830 35 5 20°C [P] 1.4203  $\mathbf{n}_{\mathbf{D}}$ 2 Parachor d<sub>c</sub> g/ml 0.265 5 25 1.4179 2 20°C vc ml/g tc °C 5 3.773 30 1.4151 4 30 302.5 5 40 "C" 0,7231 4 P<sub>c</sub> mm 20194. 5 Sugd. 320.5 5 36, 79 MR (Obs.) 2 PV/RT Exp. L.1. %/wt. MR (Calc.) 36.944 5 25°C 1,0000 (nD-d/2) u. 1.0341 2 30 mm 1.0000 95. 2 Dispersion 2.017 0.9646 Dielectric 5 BP 4 Flash Point °C t<sub>e</sub> 0.9550 5 A 35 to 6.8838 2 Fire Point 0.233 t<sub>c</sub> В 1355.0 [160 ℃ 2 M Spec. C 217.1 2 AHc kcal/m Ultra V ΔHf A\*| 35 to B\*| 145 °C 1.2909 5 X-Ray Dif. ΔFf 1264.5 Infrared ĸ Viscosity Solubility in c centistokes Acetone to Carbon tet. œ •c Benzene 00 A' 10 to 7.2244 Ether œ B١ <u> 35 °C</u> 1531.1 5 n-Heptane 00  $\mathbf{B}^{\overline{\mathbf{v}}}$ C١ Ethanol œ ĀV °C Water AI+ 15 to 1,6225 5 Water in B'# 35 °C (BV) 1432.5 to Ac | 160 to 7,2986 5 (AV) °C Bc \_tc\_ •c 1684.5 cp liq. °K Cc 260.3 Cryos. A\* c<sub>p</sub> vap. •ĸ consts. B° c, vap. te °C 134.98 5  $T_R = 0.75 T_c$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

NAME	trans-1-	Ethyl-	3-methylcyclope		STRUCTURAL FORMULA				
Mole % Pur.	Ref. M	olecul		Molecular Weight 112.20	08	H <sub>2</sub> Ç <sup>C</sup> ÇI H <sub>2</sub> Ç — ÇI	12 1G2H5		
		Ref.	1		Ref.			Ref.	
F. P. *C	-108.	2	dt/dP					$\Box$	
F.P. 100		+	°C/mm			f to to			
B. P. *C			25°C	0.9434	5			1 1	
760 mm	120.8	2	BP	0.0484	4	h		Ш	
100	59.7	2	t <sub>e</sub>	0.0366	5	f' to			
30	32, 8	4	30 mm	0.6714	4	g' <u>*K</u>			
10	12.4	5	ΔHm cal/g			h'			
1	-22.	5	ΔHv cal/g			m   to			
Pressure mm 25°C	.	_	25°C	82.98	5	n •K		1 1	
1 t	20.11	5	30 mm	82.34	5	°			
	1000.	+-	BP	72.00	5	m' to			
Density g/ml 20°	C 0.7619	2	t <sub>e</sub> (d, e)	70.35 70.39	5	n'  •K_		1 1	
	0.7577	2	A M /T	1		o'			
dt 25	0, 7535	2	ΔHv/T <sub>e</sub>	19.36	5	Surface tension			
	0.7787	4	d 35 to	86.19	5	dynes/cm. 20°C	22.42	5	
ь	-0.0383	5 4	e 135 °C	0.1175	5	₹ 30	21.44	5	
Ref. Inde	x		e'   35 °C	85.02 0.0816	5	40	20,48	5	
n <sub>D</sub> 20°	- 1	2	d <sub>c</sub> g/ml	0, 263	5	Parachor [P]			
25	1.4162	2	v ml/g	3. 802	5	20°C			
30	1.4137	4	v <sub>c</sub> ml/g t <sub>c</sub> °C	300.6	5	30			
"C"	0.7307	4	P <sub>c</sub> mm	19781.	5	Sugd.	320.5	5	
MR (Obs.		2	PV/RT	<del>                                     </del>	+	Exp. L.1.%/wt.		1	
MR (Calc		5	25°C	1,0000	5	u.		1	
(nD-d/2)	1.0376	2	30 mm	1.0000	5	Dispersion	95.	2	
Dielectri		5	BP	0.9686	4	Flash Point °C			
A 35 to		2	te tc	0.9592 0.231	5	Fire Point		1	
B (155 °C		2		0.232	+	M. Spec.			
<del></del>	217.5	2	ΔHc kcal/m ΔHf		1	Ultra V.		1	
A* 35 to B* 145 °		5	ΔFf			X-Ray Dif. Infrared		1	
K L	- 1230.7	1	Viscosity			<b> </b>		┼	
c			centistokes			Solubility in Acetone	<b>90</b>	1	
t <sub>k</sub> t			∥η °C		ļ	Carbon tet.	w •		
X			1		ļ	Benzene	<b>60</b>		
A'  10 t		2   5	1		1	Ether	<b>60</b>	1	
B' _35 °	C   1526. 6   233. 3	5	B <sub>v</sub> to			n-Heptane Ethanol	e0 e0	1	
A'* 15 t		_	A I C	1	İ	Water		1	
B'+ 35		7   5	(B <sup>V</sup> )  to	1		Water in			
Ac  155 t	<del></del>	5	(A <sup>V</sup> )  °C						
Bc tc		5	1	<del> </del>	+-	- 1			
Cc C	<b>–</b> 260.6	5	c <sub>p</sub> liq. *K	1	1			1	
Cryos. A consts. E			c <sub>p</sub> vap. *K						
te °C	134.54	5	c <sub>v</sub> vap.	1					
$T_{\mathbf{R}} = 0$ .	75 T <sub>c</sub>	. 3 4	DI 2 1 4 4	Cala from 1	د. وه	grams/100 gra		nt	
	ICES: 1-Dov			Calc. from d	ει. α	ata 5-Calc, by for			
SOURCE:		AF							
PURIFICA		AI							
LITERAT	URE REFER	RENCE	s:						

No. 16 STRUCTURAL FORMULA NAME 1, 1, 2-Trimethylcyclopentane C-(CH<sub>3</sub>)<sub>2</sub> H<sub>2</sub>C CHCH<sub>3</sub> H<sub>2</sub>C CH<sub>2</sub> Molecular C8H16 Molecular Mole Ref. Weight 112, 208 Formula % Pur Ref Ref Ref. F.P. °C F.P. 100% -21.64 2 dt/dP f to °C/mm g •ĸ 25°C 0,7061 B, P. \*C h ВP 0.04818 2 760 mm 113.729 2 0.0367 5 ſ 100 to 53.03 2 g' •ĸ 30 26.46 4 30 mm 0.6636 10 6.38 4 h' ∆Hm cal/g -26.6 5 to ΔHv cal/g m Pressure •K n 25°C 80.03 mm 25°C 27.86 ٥ 30 mm 79.88 5 1078. 5 te ВP 5 70.34 to Density m ١ 5 te (d, e) 68.82 g/ml 20°C n' •ĸ 0.77252 68.89 01 25 ď4 0.76817 AHV/T 5 19.29 30 0.76380 Surface tension 82.77 20 to 0.78991 dynes/cm. 20°C 5 5 <u>.c</u> 0.1093 **130** -0.0386 h 4 30 22.63 •c 40 21.57 Ref. Index e¹ 20°C [P] 1.42298 Parachor  $\mathbf{n}_{\mathbf{D}}$ d<sub>c</sub> g/ml 0.265 25 1.42051 2 20°C 3.773 292.18 5 vc ml/g 30 1.41792 4 30 5 40 "C" 0.7278 4 5 P<sub>c</sub> mm 19376. 320.5 5 Sugd. MR (Obs.) 36.986 2 PV/RT Exp. L. 1. %/wt. MR (Calc.) (nD-d/2) 36.944 5 1.0000 5 25°C u. 1.03672 30 mm 1.0000 Dispersion 96.9 2 0.9765 Dielectric 2.025 5 BP 4 Flash Point °C t<sub>e</sub> 0.9680 5 20 to 6.82205 2 Fire Point 0.230 t<sub>c</sub> B 1150 ℃ 1309.618 M Spec. C 218.557 2 AHc kcal/m Ultra V ΔHf A\* | 20 to B\* | 140 °C 1.21721 5 X-Ray Dif. ΔFf 1215.70 Infrared 2 Yes Viscosity ĸ Solubility in c centistokes Acetone to Carbon tet. •c 00 Benzene 00 to Ether œ B١ <u>•c</u> n-Heptane œ вv C' Ethanol œ ÃV I •c Water A'\* to Water in B'+ (BV) °C to Ac | 150 to 7.23621 5 (AV) ٠c 1633.5 Bc \_tc\_ ·c cp liq. ۰ĸ Cc 261.7 5 Cryos. A. c<sub>p</sub> vap. •ĸ consts. B c, vap. f .C 127.04 5  $T_{R} = 0.75 T_{c}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det. data 5-Calc, by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

NAME	1,1	, 3-Tri	methylcyclopenta		STRUCTURAL FORMULA				
Mole % Pur.	Ref.	Molec	ular C <sub>8</sub> H <sub>16</sub>	Molecular Weight 112.20	08	н <sub>2</sub> с-С-С н <sub>2</sub> сС	HCH <sub>3</sub>		
			ef.	T	Ref.	r		Ref.	
E B •C	-142.44					.		1	
F.P. *C F.P. 1007		<del>- + -</del>	dt/dP *C/mm			f to			
B. P. *C	+		25°C	0.5137	4				
760 mm	104.89	3   2	BP	0.04724		h		+	
100	45.41	0   2	2 6	0.0365	5	f' to			
30	19.39		30 mm	0,6496	4	g' <u>K</u>		1	
10	-0.26 -32.5		ΔHm cal/g			h'		+	
Pressure	30.3		AHv cal/g			m to			
mm 25°C	39.73	,   .	25°C	77.17	5	n <u>*K</u>			
te	1059.		30 mm BP	77.79 68.91	5			_	
Density				67.58	5	m' to			
g/ml 20°0			2    t <sub>e</sub> (d, e)	67.62	5	n'  K_		1	
dt 25			2 AHU/T	19.42	5			1	
4 30			<u>d</u> 20 •		5	Surface tension			
1 .			120		5	dynes/cm. 20°C	20.84	5	
<u>b</u>	-0.0	1020	╧┪┪	0		30 40	19.88 18.95	5	
Ref. Index	_ 1		H	С			10.75	+-	
<sup>n</sup> D 20°C			d <sub>c</sub> g/ml	0.260	5	Parachor [P] 20°C			
30			vc ml/g tc °C	3.846	5	30			
"C"	0.7	316		276.1	5	40		_	
MR (Obs.			P <sub>c</sub> mm	18455.	5		320.5	5	
MR (Calc.			PV/RT 25°C	0.0017	5	Exp. L.1.%/wt.			
(nD-d/2)	1.03	3707	2 30 mm	0.9917	5	u. Dispersion	98.6	2	
Dielectric	1.99	91 !	5 BP	0. 9826	5	Flash Point *C	7	+-	
A 20 to		0947	t <sub>e</sub>	0.9751	5	Fire Point			
B (140 °C			2 t <sub>c</sub>	0.230	5	M. Spec.		+	
С	219.89		ΔHc kcal/m	١ ا		Ultra V.			
A* 20 to			) AFF			X-Ray Dif.	1		
B*[130 °C	1181.7		Viscosity		t	Infrared	Yes	2	
c	_		centistokes			Solubility in	i		
t <sub>k</sub> to		l l	n •c	C	1	Acetone Carbon tet.	80 80		
1 °C			_		1	Benzene	80		
A'   to	1				1	Ether	<b>60</b>		
c,	<u>-</u>		B <sup>V</sup> to	,		n-Heptane Ethanol	ec   ec	į	
A'+ to	<u> </u>	-+	⊢∥ Å* ⊢ "8		}	Water	~		
B'* *C		1	(B <sup>V</sup> )  to	5 -	]	Water in			
Ac   140 to	7.2	2512	5 (A <sup>V</sup> )  •0						
Bc tc *C	1591.6	] !		<del></del>	<del>                                     </del>	1	l		
Cc -	261.8		c <sub>p</sub> liq. •1	·					
Cryos, A consts. B			c <sub>p</sub> vap. *I	K					
t <sub>e</sub> °C	117.2	7	c <sub>v</sub> vap.	1		1	İ	1	
$T_{\mathbf{R}} = 0$ .	75 T <sub>c</sub>					grams/100 gra	ms solve	nt	
REFEREN	CES: 1-I	Dow 2	-API 3-Lit. 4	-Calc, from de	t. de	ata 5-Calc. by for	mula		
SOURCE:		A	PI						
PURIFICA	TION:	A	PI						
LITERATI	JRE REF	ERENC	ES:			1.74			
ĺ									

No. 18 STRUCTURAL FORMULA NAME 1, cis-2, cis-3-Trimethylcyclopentane н<sub>2</sub>С СНСН<sub>3</sub> Н<sub>2</sub>С СНСН<sub>3</sub> Н<sub>2</sub>С СНСН<sub>3</sub> Ref. Molecular Molecular Mole C8H16 Weight 112,208 % Pur Formula Ref. Ref. F.P. °C -116.430 2 dt/dP f to °C/mm <u>•</u>K g 25°C 1.0064 B, P. °C h BP 0.0490 760 mm 123.0 2 f' 5 0.0367 to 100 61.2 2 g' ۰ĸ 30 30 mm 0.6769 4 34.2 4 10 5 13.6 h' AHm cal/g 1 -21. 5 to AHv cal/g Pressure •ĸ 25°C 83.14 mm 25°C 18.82 o 30 mm 82.38 5 te 1102. 5 BP 72.38 5 m to Density g/ml 20°C ١ te (d, e) 70.71 5 •K n' 0.7792 2 70.76 5 o' ΔHv/T  $\mathbf{d_4^t}$ 25 0.7751 2 5 19.32 30 0.7710 4 Surface tension 35 to •C 86, 23 5 0.7956 -0.03815 8 dynes/cm. 20°C 24.53 1 135 e 0.1126 Ъ 30 23.50 22.50 5 to 85.21 40 5 Ref. Index e¹ 35 0.0828 5  $\mathbf{n}_{\mathbf{D}}$ 20°C 1.4262 [P] Parachor d<sub>c</sub> g/ml 0.265 5 25 1.4238 20°C ml/g 3.773 30 1,4214 4 'n 30 •c 307.4 5 tc 40 "C" 0.7267 4 P 20192. 5 mm Sugd 320.5 5 MR (Obs.) 36.91 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 36.944 1.0000 25°C 5 (nD-d/2) 1.0366 2 30 mm 1,0000 5 Dispersion 96. 2 Dielectric 2.034 5 ВP 0.9739 Flash Point °C 0.9647 5 A 35 to 6.8485 te 2 Fire Point 0.233 B 1160 °C 1349.0 M Spec. С 217.0 2 AHc kcal/m Ultra V A Hf A\* | 35 to X-Ray Dif. 1.2378 ΔFſ B\* 1145 °C 1254.0 Infrared Viscosity Viscour, centistokes \*C Solubility in Acetone to Carbon tet. •c œ Benzene 00 A' | 10 to 7.1869 Ether œ B' ∟35 °C 1524.3 n-Heptane B<sup>V</sup> A<sup>V</sup> œ C١ 232.8 5 Ethanol to œ •c A'\* 1.5845 Water 5 A'\* 15 to B'\* 35 °C (BV) Water in 1425.6 5 to Ac | 160 to 7.2644 5  $(A^{V})_{I}$ °C Bc tc\_C 1682.9 5 сp liq. ۰ĸ Сc 261.3 Cryos. A\* cp vap. ٠ĸ consts. B° c, vap. t, °C 5 137,42  $T_R = 0.75 T_c$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula API SOURCE: PURIFICATION: API LITERATURE REFERENCES:

NAME	1, cis-2,	tran	s-3-Trimethylc		STRUCTURAL	FORMUL		
						H2Ç Ç	Нз	
						H <sub>2</sub> Ç Ç H <sub>2</sub> Ç—Ğ	HCH3	
Mole % Pur.		lecul rmuli		Molecular Veight 112,20	18	H2UU	nung	
<b> </b>	1 10	Ref.		Tengan III. E	Ref.	<b>T</b>		Ref.
F. P. *C	-112.	2	dt/dP		1			<del>                                      </del>
F.P. 100%	1	۱	*C/mm		ļ	f to		}
B. P. *C	<u> </u>		25°C	0.8224	5	h i		1
760 mm	117.5	2	BP	0.0483 0.0367	4 5	f' to		+-
100 30	56.5 29.8	2 4	t <sub>e</sub> 30 mm	0,6680	4	g'K		
10	9.5	5	ΔHm cal/g	0.0000	١	h'		1 1
1	-24.	5			┼	m to		
Pressure mm 25°C	33.40		ΔHv cal/g 25°C	81.53	5	n		
t <sub>e</sub>	23.48 1084.	5	30 mm	81.15	5	0		
Density	<b> </b>	$\vdash$	BP t <sub>e</sub>	71.21 69.62	5	m¹ to		
g/ml 20°C	0.7704	2	te (d, e)	69.67	5	n'  *K_		
dt 25	0.7661 0.7618	2	ΔHv/T <sub>e</sub>	19.32	5			
<del></del>	0.7876	4	d 30 to	84.53	5	Surface tension	22.42	_
b b	-0.0385	4		0.1133	5	dynes/cm. 20°C	23.43 22.40	5
Ref. Index	1		d'   15 to	83.50 0.0789	5	40	21.38	5
n <sub>D</sub> 20°C	1.4218	2	d <sub>c</sub> g/ml	0,263	5	Parachor [P]		
30	1,4194	2	v_mi/g	3.802	5	20°C 30		
"C"	0.7278	4	-	297.2	5	40		
MR (Obs.)	37.00	2	P <sub>c</sub> mm	19664.	5		320.5	5
MR (Calc.)		5	PV/RT 25°C	1.0000	5	Exp. L.1.%/wt.		1
(nD-d/2)	1.0366	2	30 mm	1.0000	5	u. Dispersion	96.	2
Dielectric	2.022	5	BP	0.9726	5	Flash Point C		+
A 30 to	6.8480 1331.0	2 2	t e t c	0.9635	5	Fire Point		
B 1155 °C	218.0	2	ΔHc kcal/m	<del> </del>	$\vdash$	M. Spec.		j
A* 30 to	1.2456	5	ΔHf	1		Ultra V. X-Ray Dif.		1
B*[140 °C		5	ΔFf	<del> </del>	+	Infrared		
K			Viscosity centistokes		i	Solubility in +		
t <sub>k</sub> T to			η °C			Acetone Carbon tet,	<b>80</b>	Ì
• <u>c</u>	<u> </u>	<u> </u>			}	Benzene	<b>8</b> 0	
A'   10 to B'   30 °C	7.1864 1504.0	4				Ether n-Heptane	∞	
B' 1_30 °C	233.6	4	B <sup>V</sup> to C			Ethanol	<b>8</b> 0	
A** 15 to	1,5864	5		1		Water		
B'* 30 °C	1405.6	5	(B <sup>V</sup> )  to			Water in	<b></b>	+-
Acl 155 to	7. 2638	5	(A <sup>V</sup> )  °C	<u> </u>	_	1		1
Bc tc C	1658.8 261.4	5	c <sub>p</sub> liq. *K	ļ	1		ļ	ľ
Cryos. A*	1 201.1	+-	c <sub>p</sub> vap. *K	l				1
consts. B	1		11			1		
te •C	131.1	5	c <sub>v</sub> vap.	1				
$T_R = 0.7$	5 Т <sub>с</sub>					grams/100 gra	ms solve	nt
REFERENC	ES: 1-Dow	2-A	PI 3-Lit. 4-	Calc. from de	et. d	ata 5-Calc. by for	mula	
SOURCE:		API						
PURIFICAT	TION:	API						
LITERATU	RE REFERE	NCE	S:					
I								

No. 20 1, trans-2, cis-3-Trimethylcyclopentane STRUCTURAL FORMULA NAME HEC CHCH3 HEC CHCH3 Molecular C8H16 HgČ-Molecular Mole Ref. Weight 112.208 % Pur. Formula Ref. Ref Ref. F.P. C -112.705 2 dt/dP to °C/mm <u>•</u>K\_ g 25°C 0.6228 B. P. °C 54 h 0.0477 0.0366 BP 760 mm 110.2 2 5 ť to 100 50.0 2 g' °K 30 23.7 4 5 30 mm 0.6581 4 10 3.8 h' AHm cal/g -29. 5 to AHv cal/g Pressure n ٠ĸ 25°C 78.93 32.04 mm 25°C 5 o 30 mm 79.07 1070.8 5 ŧ. 69.87 5 BP to Density g/ml 20°C m 68.41 5 te (d, e) •ĸ n' 0.7535 2 68.50 5 o'  $\mathbf{d_4^t}$ 25 0.7492 AHv/T 19.37 5 30 0.7449 4 Surface tension d 25 to °C 81.59 5 0,7707 -0,0<sub>3</sub>852 dynes/cm. 20°C 21.44 1 120 0.1063 Ъ 20.47 19.52 5 30 40 Ref. Index •1 20°C  $\mathbf{a}_{\mathbf{D}}$ 1.4138 (P) Parachor d g/ml vc ml/g tc °C 0.260 25 1.4114 20°C 3.846 30 1.4088 4 30 5 284.4 40 "C" 0,7308 4 P<sub>c</sub> mm 18809. 5 Sugd 320.5 5 MR (Obs.) 37.20 2 PV/RT Exp. L.1. %/wt. MR (Calc.) 36.944 25°C 1.0000 (nD-d/2) 1.0370 2 30 mm 1.0000 Dispersion 96. 2 Dielectric 1.999 5 ВP 0.9792 5 Flash Point °C 25 to 6.8268 t. 0.9711 5 2 Fire Point tc B 1145 °C 0.230 5 1301.0 M Spec. C 219.5 2 AHc kcal/m Ultra V AHf A\* | 25 to 1.2210 5 X-Ray Dif. ΔFf B\* 135 °C 1206.6 Infrared ĸ Viscosity Solubility in c centistokes Acetone t t x to Carbon tet. œ •c Bensene  $\overline{\Lambda}$ to Ether 00 B١ <u>•c</u> n-Heptane œ C' to Ethanol œ ÃV i A'\* •c Water to (BV) Water in B'+ •c to Ac | 145 to 7.2431 (AV) 5 •c Bc \_tc\_ •c 1622.2 5 liq. c<sub>p</sub> •ĸ Cc 262. Cryos, Aº c<sub>p</sub> vap. consts, B° c, vap. t, °C 123.13 5 TR = 0.75 Tc grams/100 grams solvent REFERENCES: 1-Dow 2-API 4-Calc. from det. data 5-Calc. by formula 3-Lit. SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

NAME		l, ci	s-2,	cis-	4-Trimethylcyc		STRUCTURAL FORMULA				
Mole % Pur.		Ref.	Mo	lecul		Molecular Veight 112.20	08	н <sub>2</sub> с Снс н₃снс—с	H3 HCH3 H2		
				Ref.		1 12:2:	Ref.	1		Ref.	
F. P. *C	T			1.61	dt/dP		1			1	
F.P. 100	6			$\vdash$	°C/mm		1	f to			
B. P. *C	7				25°C	0.8266	5	h			
760 mm	- 1	118.		2	BP t	0.0486 0.0366	5	f' to			
100 30		57. 29.8		2	t <sub>e</sub> 30 mm	0.6715	4	g'• <u>K</u>			
10		9.4		5	ΔHm cal/g	0.000	<del> </del>	h'			
1	4	-25.		5	ΔHv cal/g		-	m to		T	
Pressure mm 25°C	.	23,49		5	25°C	81.10	5	n   •K			
t <sub>e</sub>		094.		5	30 mm	80.74 71.47	5				
Density	$\top$				BP t <sub>e</sub> ,	69.87	5	m' to			
g/ml 20°	c	0.76		2	t <sub>e</sub> (d, e)	69.99	5	n'   <u>*K</u>		ì	
dt 25 4 30		0.76 0.75		2	ΔHv/T <sub>e</sub>	19.35	5			+	
•	+	0,78		4	d 30 to	83.87	5	Surface tension dynes/cm. 20°C	22.90	5	
b	-	-0.03		4	130 °C	0.1051	5	30 Synes/em. 20 C	21.95	5	
Ref. Inde:	ĸ				d'   10 to	83.00 0.0760	5	40	21.02	5	
n <sub>D</sub> 20°	С	1.42		2	d <sub>c</sub> g/ml			Parachor [P]		1	
25 30	i	1.42 1.41		2	v <sub>c</sub> mi/g		1	20°C 30			
"C"	$\top$	0,73		4		298.7	5	40			
MR (Obs.	+	37.2		2	P <sub>c</sub> mm	19618.	5		320.5	5	
MR (Calc		36. 94	4	5	PV/RT 25°C	1.0000	5	Exp. L.1.%/wt.			
(nD-d/2)	$\perp$	1.03	9	2	30 mm	1.0000	5	u. Dispersion	96.	2	
Dielectric	:	2,02	2	5	BP	0.9795	4	Flash Point C		+	
A 30 to		6, 84	2	2	t <sub>e</sub>	0.9703	5	Fire Point			
B 1,155 °C	~- ¹	335. 219.		2 2	AHc kcal/m		+	M. Spec.			
A*  30 to	, †	1,22	7	5	ΔHf			Ultra V. X-Ray Dif.		1	
B*[140 °		238.		5	ΔFf		<del>↓</del> —	Infrared			
K — —					Viscosity centistokes			Solubility in +		1	
t <sub>k</sub> [ _ tc					η ·c			Acetone Carbon tet.	<b>60</b>		
<u>t</u> (				l	•			Benzene	<b>80</b>		
A'  10 to		7.18	0	5			_	Ether	oc		
B' 1_30_9	٠١,	509. 235.		5	B <sub>v</sub> to			n-Heptane Ethanol	<b>80</b>	1	
A'* 15 to	,	1,57	8	5	B to			Water			
B'* 30 °		409.		5	(B <sup>V</sup> )  to		1	Water in		+	
Ac 155 to	<u>.</u> T	7.26	0	5	(A <sup>V</sup> )  °C		L				
Bc tc	<u>-</u>  1	1667. 263.		5	c <sub>p</sub> liq. °K						
Cryos. A	•	205.		<del>                                     </del>	41 -				1		
consts. B				1	c <sub>p</sub> vap. *K				1	ı	
t <sub>e</sub> °C		132.04		5	c <sub>v</sub> vap.						
$T_{\mathbf{R}} = 0.$								† grams/100 gra		ent	
REFEREN	CE	S: 1-I	)ow	2-A	PI 3-Lit. 4-	Calc. from d	et. d	ata 5-Calc, by for	mula		
SOURCE:				AF	Y						
PURIFICA				AF	<del></del>						
LITERAT	URI	E REF	ERE	NCE	S:						

No. 22 NAME 1, cis-2, trans-4-Trimethylcyclopentane STRUCTURAL FORMULA H<sub>2</sub>C CHCH<sub>3</sub> CHCH<sub>3</sub> H<sub>3</sub>CHC — CH<sub>2</sub> Molecular C8H16 Molecular Ref. Mole Weight 112,208 % Pur Formula Ref. Ref Ref. F.P. °C F.P. 100% -132.55 2 dt/dP f to °C/mm •ĸ g 25°C 0.7969 B. P. \*C h BP 0.04827 2 760 mm 116.731 2 ſ 0.0366 5 to 100 55.824 2 g' °K 30 29.11 0.6678 4 30 mm 4 10 8.8 5 h' ∆Hm cal/g -25. 1 5 to ΔHv cal/g Pressure n ۰ĸ 25°C 81.10 mm 25°C 24.36 o 30 mm 80.79 5 te 1086. 5 5 BP 71.25 m' Density g/ml 20°C to te (d, e) 69.69 •ĸ n' 0.76345 2 69.77 5 01  $\mathbf{d_4^t}$ 25 0.75920 ΔHv/T<sub>e</sub> 5 19.38 30 0.75494 4 Surface tension d to 83.95 5 30 0.78044 -0.0<sub>3</sub>84 dynes/cm. 20°C 22.60 1 130 • <u>.c</u> 0.1088 ь 30 5 21.60 20.63 ā٠ to 82.99 15 40 5 Ref. Index 0.0757 30  $\mathbf{n}_{\mathbf{D}}$ 20°C 1.41855 [P] Parachor d v t c 0.262 g/ml 5 25 1.41612 2 20°C ml/g 3.817 5 30 1.41363 4 30 •c 295.4 5 40 "C" 0.7291 4 P<sub>c</sub> mm 5 19513. Sugd 320.5 5 MR (Obs.) 37.082 2 PV/RT Exp. L. l. %/wt. MR (Calc.) 36.944 25°C 1.0000 5 (nD-d/2) 1.03683 2 30 mm 1.0000 5 95.7 2 Dispersion Dielectric BP 2.012 5 0.9759 4 Flash Point °C 0.9672 30 to t<sub>e</sub> 5 6.85448 2 Fire Point tç 0.233 B 1155 °C 1333,894 M Spec. С 218.952 2 AHc kcal/m Ultra V AHf A\* 30 to 5 1.24624 X-Ray Dif. ΔFf B+ 140 °C 1238.9 2 Yes Infrared ĸ Viscosity Viscos.., centistokes °C Solubility in c Acetone œ to Carbon tet. œ °C Benzene œ A'I 10 to 7.19325 Ether œ B١ <u> 30 °C</u> 1507.26 n-Heptane œ C١ 234.6 В Ethanol  $\tilde{\mathbf{A}}^{\mathbf{v}}$ to 00 •c Water A'\* A'\* 15 to B'\* 30 °C 1.59246 5 Water in (BV) 1408.3 to Ac | 155 to 7.27153 (AV) •c Bc tc\_C 1662.38 cp liq. ۰ĸ Cc 262.3 Cryos. A' c<sub>p</sub> vap. ۰ĸ consts. B. te °C c, vap. 130.36 5  $T_{\mathbf{R}} = 0.75 \, T_{\mathbf{c}}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula API SOURCE: PURIFICATION: API LITERATURE REFERENCES:

NAME	l, trans	-2, ci	s-4-Trimethylc	yclopentane		STRUCTURAL FORMULA  H2C CHCH3 CHCH3				
Mole		lecul		Molecular		н₂С°С н₃СнС́—С				
% Pur.	F0	rmula		Veight 112,20		<del></del>				
	<u></u>	Ref.			Ref.		Ref.			
F. P. *C	-130.78	2	dt/dP			f to				
F.P. 100	<u> </u>	ļ	*C/mm 25*C	0,6098	4	g ' <u>*K</u>				
B. P. *C			BP	0.04738		h				
760 mm	109.290 49.519	2 2	te	0.0363	5	f' to				
30	23, 31	4	30 mm	0.6551	4	g' <u>K</u>				
10	3.48	5	ΔHm cal/g		$\vdash$	h'				
1	-29.	5				m to				
Pressure			ΔHv cal/g 25°C	79.05	4	n  •K				
mm 25°C		4	30 mm	79.23	5	°				
t <sub>e</sub>	1070.	5	BP	70.16	5	m' to				
Density g/ml 20°	0.74727	2	te (d. a)	68.72	5	n' K				
	0.74302	2	·e (u, e)	68.81	5	0'				
d <sub>4</sub> 30	0.73876	4	ΔHv/T <sub>e</sub>	19.51	5	Surface tension				
a	0.76426	4	d 25 to	81.68	5	Surface tension dynes/cm. 20°C	20.74 5			
ь	-0.03842	4	_e_ _120 °C d' 100 to	0.1054	5	¥ 30	19.80 5			
Ref. Inde:			e' °C			40	18.88 5			
n <sub>D</sub> 20°		2	d <sub>c</sub> g/ml		1	Parachor [P]				
30	1.40812 1.40565	2	II v mi/g			20°C	ļ			
		_	vc ml/g tc *C	282.2	5	30 40				
"C"	0.7315	4	P <sub>c</sub> mm	18944.	5		320.5 5			
MR (Obs. MR (Calc		2	PV/RT			Exp. L.1.%/wt.				
(nD-d/2)	1,03696	5 2	25°C	1.0000	4	u.				
Dielectric		5	30 mm BP	1.0000 0.9805	5 4	Dispersion	96.8 2			
A 25 to		-		0.9726	5	Flash Point C	3.0 5			
B   145 °C		2 2	te t			Fire Point				
c	219.808	2	ΔHc kcal/m			M. Spec. Ultra V.				
A* 25 to	1, 24227	5	ΔHf		1	X-Ray Dif.				
B*[130 °	1211.22	5	ΔFf		├	Infrared	Yes 2			
K		ł	Viscosity centistokes		1	Solubility in +				
t <sub>k</sub>   - to	<del>-</del>	İ	n °c			Acetone	oc			
,	5		<b>'</b>		1	Carbon tet. Benzene	ec ec			
A'   to					1	Ether	<u>~</u>			
B' '	드	1	B <sub>v</sub> to	<b></b>	<del>                                     </del>	n-Heptane	<b>*</b>			
C'	<del></del>		B to		1	Ethanol Water	<b>∞</b>			
A'* to			v			Water in				
		+_		ŀ						
Ac 145 to	7.2659 C 1626.0	5	(A <sup>V</sup> )  °C		-	4				
Cc	261.84	5	c <sub>p</sub> liq. *K	1						
Cryos. A consts. B			c <sub>p</sub> vap. *K		i					
te °C	122.08	5	c <sub>v</sub> vap.		ł					
$T_R = 0.$	75 T <sub>C</sub>	- <b></b>	и	<b></b>		grams/100 gra	ms solvent			
	CES: 1-Dow	2-A	PI 3-Lit. 4-	Calc. from de	t. da	ta 5-Calc. by for	mula			
SOURCE:		API								
PURIFICA	TION:	API								
	URE REFERE	NCE	s:							

No. 24 STRUCTURAL FORMULA NAME n-Butylcyclopentane H2C CHC4H9 H2C CH2 H2C - CH2 Ref. Molecular Molecular Mole C9H18 Weight 126, 234 % Pur. Formula Ref. Ref Ref. F.P. °C F.P. 100% -107, 985 2 dt/dP to °C/mm •K g 25°C 4.2217 B. P. °C h 0.0512 BP 2 760 mm 156.56 2 5 0.0366 ſ١ to 100 91.8 2 \_K g' 63.3 30 30 mm 0.7137 4 4 10 41.6 5 h¹ AHm cal/g 1 5.3 5 300 to -0.1745 ΔHv cal/g Pressure n 600°K 0.0021 25°C 87.23 mm 25°C -0.0513 3.8013 5 o 4 30 mm 83, 25 70, 75 5 1168. 5 t<sub>e</sub> BP 700 to 0.0340 m Density g/ml 20°C te te (d, e) 68.54 5 11000°K n' 0.0013 0.7846 2 68.40 5 o' -0.0644 4 d4 25 0.7808 ΔHv/Te 5 19.35 30 0,7770 4 Surface tension d 91.73 5 0.7998 65 to 44 dynes/cm. 20°C 24.93 5 -0.0<sub>3</sub>76 \_175 °C 15 to 0.1340 5 ь á٠٦ 30 23.97 5 to 89.82 5 5 40 23,04 Ref. Index e¹ 65 °C 0.1039 5 20°C  $\mathbf{n}_{\mathbf{D}}$ 1.4316 2 Parachor [P] d g/ml vc ml/g tc °C 0,270 5 25 20°C 1.4293 2 3,70 30 1,4272 4 30 5 343.5 40 "C" 0.7303 4 P<sub>c</sub> mm 19349. 5 Sugd 359.5 5 MR (Obs.) 41,70 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 41.562 25°C 1.0000 (nD-d/2) 1.0393 2 30 mm 96. 2 1.0000 Dispersion Dielectric 2.049 5 BP 0.9515 5 Flash Point °C te 5 A 65 to 6, 9189 0.9383 2 Fire Point 0.235 5 1730 .C 1460.0 M Spec. C 205.0 2 2 AHc kcal/m 1326.42 Ultra V. ΔHf -51.22 2 1.3699 A\* 65 to X-Ray Dif. ΔFſ 14.69 2 gas B\* 185 °C 1371.9 Infrared Viscosity Solubility in centistokes Acetone t<sub>x</sub> to 20 1.134 Carbon tet. •c 40 0.889 2 Bensene 60 0.724 2 7.2617 A' 10 to 5 Ether œ 80 0.61 2 B١ 1649.8 \_6<u>5</u> °C n-Heptane œ -30 221.9 5 B 4 496.67 to Ethanol œ A | 30 °C ₹. 36065 4 Water A\*\* 15 1.7021 5 Water in (BV) 30 B'\* 65 •c 1553.3 5 452, 36 4 to Ac | 190 to (AV) | 90 7.3197 5 **Z**. 50458 4 Viscosity Bc tc\_C 1793.2 cp liq. centistokes ۰ĸ 247.7 2.10 2 -20°C 1.508 0 Cryos. A c<sub>p</sub> vap.300°K 0.33858 2 consts. B° 2 0.45764 c, vap. t. °C 174.06 5  $T_{\mathbf{R}} = 0.75 \, T_{\mathbf{c}}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API API PURIFICATION: LITERATURE REFERENCES:

						No. 25				
NAME				pentane			ST	RUCTURAL		^
	1-0	yclope	nty	lpentane				H2C CHC	S Hii He	- 1
Mole	Ref.	Mole	cul	r C <sub>10</sub> H <sub>20</sub>	Molecular	ļ		H2Ċ—Ċ		
% Pur.		Forn	nula	10 <sup>H</sup> 20 V	eight 140.26	50				
		I	Ref.			Ref.	L			Ref.
F. P. °C	-83.		2	dt/dP			f	to		
F.P. 100	*			°C/mm 25°C	12,120	5	g	' <u>*K</u>		
B. P. °C 760 mm	180.		2	BP	0,0532	4	h			<del>  </del>
100	113.		2	t <sub>e</sub>	0.0364	5	f' g'	to •K		
30 10	83. 60.		4 5	30 mm	0,7432	4	h'			
1	22.		5	ΔHm cal/g			m	300 to	-0,1550	4
Pressure			ا ۔	ΔHv cal/g 25°C	87.11	5	n	_6 <u>0</u> 0_•K	0.0020	
mm 25°C	1.19	734	5	30 mm	80.58	5	٥		-0.0 <sub>5</sub> 12	4
Density	<u> </u>	-+		BP t <sub>e</sub>	68.06 65.63	5	m'	700 to	0.0428	
g/m1 20°			2	te (d, e)	65.39	5	n' o'	T000 •K	0.0013 -0.0 <sub>6</sub> 43	
d <sub>4</sub> 25	0.78		2 4	ΔHv/T <sub>e</sub>	19.42	5			6	-
	0,80		4	d 85 to	91.26	5		face tension es/cm, 20°C	25.53	5
ь	-0.0	364	4	200 °C to	0.1289 89.93	5	8	30	24.57	5
Ref. Inde			2	e¹   85 °C	0,1128	5		40	23.62	5
<sup>n</sup> D 20°0	C 1.4:		2	d <sub>c</sub> g/ml			Par	achor [P]		
30	1.4	313	4	vc ml/g tc ℃	366.0	5		30		
"C"	0, 7		4	P <sub>c</sub> mm	17703.	5		40 Sugd.	398.5	5
MR (Obs. MR (Calc			2 5	PV/RT			Exp	L.1.%/wt.		
(nD-d/2)	1.04		2	25°C 30 mm	1.0000	5	i -	u.	96.	2
Dielectric	2.00	62	5	BP BP	0.9515	4		persion sh Point <sup>6</sup> C	70.	+-
A 85 to		29	2	t <sub>e</sub>	0.9375	5		e Point		
B 1220 °C	C_ 1526. 197.	1	2 2	ΔHc kcal/m	1473, 34	2	М.	Spec.		T
A* 85 to		05	5	ΔHf	1415.54	-		ra V. Ray Dif.		
B+ 210 °	C 1435.		5	ΔFf		$\vdash$		ared		<u> </u>
K -				Viscosity centistokes	ļ			ubility in +		
t <sub>k</sub> te				7 -20°C	2.82	2		etone arbon tet.	ec ec	
\(\frac{\chi_1}{\chi_1}\)		-	_	20	2.02 1.458	2 2	Be	enzene	••	İ
A'   15 to B'   85 °		12	5	40	1,102	2		her Heptane	ec ec	
C'	215.		5	B <sup>V</sup>   -30 to A <sup>V</sup>   30 °C	531.71	4	Et	hanol	•	
A'* 20 to		55	5		2.35028	1		ater ater in		
B'* 85 °		05	5	(B <sup>V</sup> )  30 to	511.21	4	-	cosity		
Bc tc	C 1948.	9	5		Z. 40996	4		tistokes		1_
Ce	_ 251.		5	P				60°C 80	0.875	2 2
Cryos. A consts. B		i		c <sub>p</sub> vap.300°K	0.34386 0.46136					-
te °C	200, 7	+	5	c <sub>v</sub> vap.		-				
$T_R = 0.$				u	1		+ p	rams/100 gra	ms solve	nt
		Dow :	2-A	PI 3-Lit. 4-	Calc. from de	et. da				
SOURCE:				PI						
PURIFICA	TION:	* = . !! *.	Α	PI						
LITERAT		EREN	CE	5:						

No. 26 STRUCTURAL FORMULA NAME n-Hexylcyclopentane 1-Cyclopentylhexane Molecular Molecular Mole Ref. C11H22 Formula Weight 154,286 % Pur. Ref Ref Ref. F.P. C F.P. 100% -73. 2 dt/dP f to \*C/mm g •ĸ 25°C 36.80 B. P. \*C h ВP 0.05527 5 760 mm 203. 2 f 5 0.0367 100 to 133. 2 g' •ĸ 30 102. 30 mm 4 0.7725 4 10 79. 5 h' ∆Hm cal/g 1 39. 5 300 to 600 **°**K -0.1387 m ΔHv cal/g Pressure n 0.002d 25°C 87.71 mm 25°C 0.3548 0 -0.0<sub>5</sub>12 30 mm 78, 32 5 1286. t<sub>e</sub> 5 BP 5 65.18 700 to 0.0494 0.0012 m Density g/ml 20°C te te (d, e) 62.36 5 1000 °K 'n 0.7965 0.7927 62.13 5 2 01 -0.0643 4  $d_4^t$ 25 ΔHv/T<sub>e</sub> 5 19.26 30 0.7889 4 Surface tension 100 to 91.64 5 0.8117 dynes/cm. 20°C . 26.02 1 225 •<u>c</u> 0.1303 . 5 -0.0376 ь 4 30 ď 25.04 5 25 to 90.76 5 1 40 e' 24.09 5 Ref. Index 100 0.1217 20°C 1.4392 2 [P]  $\mathbf{n}_{\mathbf{D}}$ dc g/ml vc ml/g tc °C Parachor 25 1.4370 2 20°C 30 1.4349 4 30 5 387.0 40 "C" 0.7313 4 P<sub>c</sub> mm 16025. 5 Sugd. 437.5 5 MR (Obs.) 50.97 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 50.798 25°C 1.0000 5 (S/b-da) 1.0410 2 30 mm 1.0000 5 Dispersion 96. 2 Dielectric 2,071 5 BP 0.9434 5 Flash Point °C 0.9249 5 t<sub>e</sub> 100 to 6.934 2 Fire Point tc B 1240 °C 1589. M Spec. С 189. 2 AHc kcal/m 1620,28 Ultra V ΔHf A\* | 100 to X-Ray Dif. 1.4510 AFf B+ 1235 °C 1501. Infrared Viscosity Solubility in c centistokes Acetone to -20 °C 3.77 2 •c Carbon tet. 2 ٥ 2.64 Benzene 00 20 1.87 2 A' | 25 to 7.278 5 Ether 1.378 00 2 40 B' (100 °C 1796. n-Heptane œ -30 to C' 5 207. 563.28 4 Ethanol A | 30 °C 2. 35169 Water A'\* 25 to B'\* 100 °C 4 5 1.796 (B<sup>V</sup>) 30 to Water in 1702. 5 552.35 (A<sup>V</sup>)| Ac | 240 to 5 7.444 °C Viscosity 90 Z. 37568 Bc tc\_C 2058. centistokes cp liq. •ĸ 60°C 1.068 249. 2 80 0.87 c<sub>p</sub> vap.300°K Cryos. A. 0.34825 consts. B. 2 400 0.46440 c<sub>v</sub> vap. te °C 226.4 5  $T_R = 0.78 T_C$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula API SOURCE: PURIFICATION: API LITERATURE REFERENCES:

	n_H	entules	velo	pentane			No. 21					
NAME						$\dashv$	STRUCTURAL FORMULA  CHC7H15  H2C CH2					
ļl	1-0	yclope	ntyl	heptane				H <sub>2</sub> C CH	C7 H15 :H2			
Mole	Ref	Mole	cul	Ar C <sub>12</sub> H <sub>24</sub>	Molecular	- 1		нгс—С	H <sub>2</sub>			
% Pur.		Forr	mula	12 <sup>H</sup> 24 V	Veight 168.3	2						
		1	Ref			Ref.				Ref.		
F.P. °C	-53.		2	dt/dP			f	to				
F.P. 100	*			*C/mm 25*C	108,11	5	g	' <u>*K</u>				
B. P. *C 760 mm	224.		2	BP	0.0571	5	h			<u> </u>		
100	152.	i	2	t <sub>e</sub>	0.0370	5	f'	to		ĺ		
30 10	120.		4 5	30 mm	0.7993	4	g'	<u>*K</u>		1		
10	95. 55.	ŀ	5	ΔHm cal/g		Ш	h'	300 to	0.1262	4		
Pressure				ΔHv cal/g		_	m n	600 °K	-0.1262 0.0019			
mm 25°C		101	5	25°C 30 mm	88.18 76.02	5 5	0		-0.0 <sub>5</sub> 11	4		
t <sub>e</sub>	1329.		5	BP	62.39	5	m'	700 to	0, 0593	4		
Density g/ml 20°	0.8	010	2	t <sub>e</sub> (d, e)	59.35 59.01	5	n'	1000 °K	0.0012	4		
dt 25	0.7	973	2	ΔHv/T <sub>e</sub>	19.10	5	0'		-0.0 <sub>6</sub> 42	4		
4 30	0.7	$\longrightarrow$	4	d 120 to	91.68	5	Sur	face tension				
a b	-0.0		4 4	e   250 °C	0.1308	5	dyn	es/cm. 20°C	26.44 25.48	5		
Ref. Inde		3.2		d'   25 to	91.39	5	•	30 40	24.54	5		
n <sub>D</sub> 20°		421	2	e'   120 °C	0.1283	5	Par	achor [P]				
25	1.4		2 4	d g/ml v ml/g				20°C				
30 "C"				v <sub>c</sub> ml/g t <sub>c</sub> °C	405.8	5		30 40				
	0.7		4	P <sub>c</sub> mm	14654.	5			476.5	5		
MR (Obs. MR (Calc			2	PV/RT			Exp	. L.1.%/wt.				
(nD-d/2)	1.0		2	25°C 30 mm	1.0000	5	Die	u. persion	96.	2		
Dielectric	2.0	80	5	BP	0.9345	4		sh Point *C	70.	<u> </u>		
A 120 to		42	2	ţe	0.9135	5		e Point				
B 1.270 °C	7_1649. 182.		2 2	AHc kcal/m	1767, 20	2	М.	Spec.				
A* 120 to	<del></del>	97	5	ΔHf	1707.20	-		ra V. Ray Dif.				
B*  260 °C		′′	5	ΔFÍ				ared				
K	_			Viscosity centistokes			Sol	ubility in +				
t <sub>k</sub>   -t	<del>-</del>			7 -20 °C	4.94	2		etone	••			
X				0 20	3.40	2 2		rbon tet.	<b>80</b>	i		
A'   20 to		86	5	40	2.35 1.698	2		her	oc			
B' 120 °	C 1863. 201.		5	B <sub>v</sub> -30 to	598.84	4		Heptane hanol	<b>80</b>			
A1# 25 to	1.8	38	5	A'   30 °C	2. 32863	4	W.	ater	_			
B'+120 °	C 1772.		5	(B <sup>V</sup> )  30 to	612.13	4	W.	ater in	ļ	$\vdash$		
Ac 270 to		64	5	(A <sup>V</sup> )  90 ℃	₹. 27551	4		cosity				
Bc tc	C 2259. - 259.	ŀ	5	c <sub>p</sub> liq. °K			cen	tistokes 60°C	1.284	2		
Cryos. A			<u>-</u>	-	0,35185	2		80	1.02	2		
consts. B		l		c <sub>p</sub> vap.300°K 400	0.46699	2			1	i		
t <sub>e</sub> °C	249.9		5	c <sub>v</sub> vap.								
$T_{\mathbf{R}} = 0$ .	80 T <sub>C</sub>				·	_	+ g	rams/100 gra	ms solver	ıt		
		Dow	2 - A	PI 3-Lit. 4-	Calc. from de	et. da						
SOURCE:			ΡI									
PURIFICA	TION:	Al	ΡI									
LITERAT		FEREN	ICES									
I												

No. 28 STRUCTURAL FORMULA NAME n-Octylcyclopentane H2C CHC8H17 1-Cyclopentyloctane наф-фне Molecular C13H26 Mole Ref. Molecular Weight 182.338 % Pur. Ref Ref. Ref. -44. 2 dt/dP f to F.P. 100% °C/mm g •ĸ 25°C 318,2 B. P. °C h ВP 0.0586 5 760 mm 243. 2 5 f 0.0370 to 100 169. 2 g' ۰ĸ 30 136. 4 30 mm 0.8215 4 10 111. 5 h' ∆Hm cal/g 69. 5 300 to -0.1267 ΔHv cal/g m Pressure \_600 °K 0.0019 n 25°C 89.10 5 mm 25°C 0.0342 5 -0.0512 o 4 30 mm 74.03 5 1373. 5 t<sub>e</sub> ВP 60, 16 5 0.0638 m' 700 to 1 Density g/ml 20°C 5 56.93 te (d, e) n' 11000 °K 0.0012 56.51 0.8048 5 2 -0.0642 اه 4 0.8011 25  $\mathbf{d_4^t}$ 2 ΔHv/T 5 19.07 30 0.7974 4 Surface tension T 135 91.65 5 to 0.8196 4 . dynes/cm. 20°C 26.80 <u>2</u>65 •c 0.1296 92.50 5 -0.0374 i h a٠-30 5 25.83 25 to 5 1 40 24.88 5 e¹ Ref. Index 0.1358 135 •c 5 20°C n<sub>D</sub> [P] 1.4446 2 Parachor d<sub>c</sub> g/ml 25 1.4425 2 20°C ml/g tc °C 30 1,4403 4 30 421.3 5 40 "C" 0.7322 4 P<sub>c</sub> mm 13445. 5 Sugd. 515.5 5 MR (Obs.) 60.25 2 PV/RT Exp. L.1. %/wt. MR (Calc.) 60.034 1.0000 25°C 5 u. (nD-d/2) 1.0422 2 30 mm 1.0000 5 Dispersion 97. 2 Dielectric BP 2.087 5 0.9294 Flash Point °C t<sub>e</sub> 0.9064 5 A 135 to 6.957 2 Fire Point B 295 °C 1704. <sup>t</sup>c 2 M Spec. Ultra V. C 2 175. AHc kcal/m 1914.12 ΔHf A\* | 135 to 1.543 5 X-Ray Dif. ΔFf B+ 280 °C 1620. Infrared ĸ Viscosity Solubility in c centistokes Acetone to -20 °C ا ا ا 6.39 2 Carbon tet. 00 •c 0 4.32 2 Benzene 2.93 20 2 A' | 25 to 7.302 5 Ether œ 2,07 B' (135 °C 1925. 40 n-Heptane 00 -30 to 195. 5 62<u>8</u>. 48 Ethanol œ AV I Z. 32334 A<sup>1+</sup> 25 to B<sup>1+</sup> 135 °C 30 °C 4 Water 1.884 5 (B<sup>V</sup>)| 30 to Water in 1836. 5 664.89 Ac | 295 to 7,740 5 (AV) 90 °C Z. 19308 Viscosity Bc tc C 2521. 5 centistokes liq. ۰ĸ C<sub>D</sub> Cc 277. 60℃ 1.528 2 80 Cryos. A. 1.19 c<sub>p</sub> vap.300°K 0.35489 consts. B° 0.46913 400 c, vap. f .C 5 271.1  $T_{R} = 0.82 T_{C}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det. data 5-Calc, by formula SOURCE: API API PURIFICATION: LITERATURE REFERENCES:

NAME	n-Nonylcyclopentane						STRUCTURAL FORMULA				
	1-Cy	clopen	tylno	nane			H2C CHC9H19				
Mole % Pur.	Ref.	Molec		C <sub>14</sub> H <sub>28</sub>	Molecular Weight 196.36	4		H2C — C			
		R	eſ		T. T. T. T. T. T. T. T. T. T. T. T. T. T	Ref.				Ref.	
F, P. *C	-29.		2	dt/dP			ſ	to			
F.P. 100	6			*C/mm			g	'• <u>K</u>		i	
B. P. *C		i	İ	25°C BP	996.11	5	h				
760 mm 100	262. 186.		2	te	0.0371	5	f'	to			
30	152.		4	30 mm	0.8439	4	g'	<u>*K</u>		1	
10 1	126.		5	ΔHm cal/g			h'				
Pressure	83.		5	ΔHv cal/g			m	300 to	-0.1049		
mm 25°C	0.00	998	5	25°C	90.54	5	n o	600 <b>-</b> •K	0.0018 -0.0 <sub>5</sub> 10		
t <sub>e</sub>	1411.		5	30 mm BP	72.28 57.97	5 5		ļ		<b>├</b> ─	
Density				t_	54.61	5	m' n'		0.0647 0.0012		
g/ml 20°0 t 25			2	te (d, e)	54.03	5	٥'	1000 •K	-0.0612		
d <sub>4</sub> 25	0.80		2	ΔHv/T <sub>e</sub>	18.97	5		<u> </u>	- 6	<del> </del>	
<u>a</u>	0.82		4	d 150 to		5		face tension es/cm. 20°C	27.12	5	
ь	-0.03		ــاا نه	e 285 °C d' 25 to		5	8,	30	26.16	5	
Ref. Inde:				e'   150 °C		5		40	25.23	5	
<sup>n</sup> D 20°0	1.44		2	d <sub>c</sub> g/ml			Par	achor [P]			
30	1.44		4	v <sub>c</sub> mi/g				20°C 30			
"C"	0.73		4		437.4	5		40		1_	
MR (Obs.		<b></b>	2	P <sub>c</sub> mm	12418.	5			554.5	5	
MR (Calc			5	PV/RT 25°C	1,0000	4	Exp	b. L.1.%/wt.			
(nD-d/2)	1.04	27	2	30 mm	1.0000	5	Dis	u. persion	97.	2	
Dielectric	2.09	3	5	BP	0.9210	4		sh Point C		$t^-$	
A 150 to			2	te tc	0.8968	5	Fir	e Point			
B (310 °C	7 1757. 168.		2	ΔHc kcal/m	2061,05	2		Spec.		Ţ	
A* 150 to			5	ΔHf	2001.03	-		ra V. Ray Dif.			
B* 300 °C			š  _	ΔFf		1		rared			
K	_	}		Viscosity			Sol	ubility in +			
t <sub>k</sub>	<del>-</del>		- 11	centistokes  7 - 20 °C	8,14	2	Ac	etone	oc		
tx i	7		- 11	. 0	5.41	2		rbon tet. enzene	ec ec		
A'   20 to			5	20 40	3.60 2.49	2 2	Et	her	ø0	i	
B' 150 °	2 1985. 188.		5	DV 20.4-		4		Heptane hanol	ec ec		
A'* 25 to			5	A   30 °C		4		ater	"	-	
B'* 150 °C				(B <sup>V</sup> )  30 to	708.87	4	W	ater in		<del> </del>	
Acl to				(AV)  90 °C	Z. 13289	4	Vis	cosity			
Bc tc	<u> </u>			c <sub>p</sub> liq. °K			cen	tistokes		١.	
<u> </u>				_				60°C	1.80	2 2	
Cryos. A			1	c <sub>p</sub> vap.300°K	0.35755 0.47096			••	150	-	
te °C	292.2		5	c, vap.	0.47070	-					
	1 272.2		<u> </u>			لــــــــــــــــــــــــــــــــــــــ	+ ~.	rams/100 gra	me solve-		
REFEREN	CES: 1-1	Dow 2	- A DI	1 3-1.i+ 4	-Calc, from de	et de					
SOURCE:			API		Care, mont di	ue		32.0. 0, 101			
	TION		API		<del></del>						
PURIFICA											
LITERAT	UKE KEF	EKEN(	ÆS:								

STRUCTURAL FORMULA NAME n-Decylcyclopentane CHC10H21 H2C CH2 H2C-CH2 1-Cyclopentyldecane Molecular C<sub>15</sub>H<sub>30</sub> Molecular Mole Ref. Weight 210.390 % Pur Ref Ref. Ref. F.P. \*C F.P. 100% -22,13 2 dt/dP ſ to °C/mm g °K 1 25°C 3179.1 5 B. P. °C h ВP 0.0614 760 mm 279.2 2 0.0372 5 f 100 to 201.3 2 g† •ĸ 30 166.9 4 30 mm 0.8624 4 10 140.6 5 h! AHm cal/g 96.6 1 5 300 to -0.0965 ΔHv cal/g m Pressure 600 °K 0.0018 n 4 25°C 92.57 mm 25°C 0.00285 o -0.0698 4 30 mm 70.70 5 1446. 5 t<sub>e</sub> BP 5 56.06 700 to 0.0711 m' Density 52.52 5 te te (d, e) 0.0012 11000 °K g/ml 20°C n' 0.81097 0.80739 2 51.86 5 0 -0.0<sub>6</sub>41 4 2 25  $d_4^t$ AHV/T 18.90 5 30 0.80381 4 Surface tension 165 to 92.46 5 0.82529 -0.03716 4 dynes/cm. 20°C 27.39 26.44 5 •<u>c</u> 0.1304 300 h 30 ď٠ to 25 96.43 5 40 25.51 5 e¹ Ref. Index **•**C 165 0.1541 1.44862 20°C [P]  $n_D$ d g/ml vc ml/g tc °C Parachor 1.44659 25 2 20°C 1,44438 4 30 30 450.6 5 40 "C" 0.7327 4 P<sub>c</sub> mm Sugd. 593.5 5 11416. 5 MR (Obs.) 69.534 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 69.276 5 25°C 1.0000 5 (nD-d/2) 1.04314 2 30 mm 1,0000 5 Dispersion 96.9 2 Dielectric 2,098 5 0.9153 BP 4 Flash Point °C t<sub>e</sub> 0,8889 5 A 165 to 6.971 2 Fire Point 1798. t<sub>c</sub> B [330 °C 2 M Spec. Ultra V. c 160.4 2 AHc kcal/m 2207.97 2 ΔHf A\* | 165 to 1.619 5 X-Ray Dif. ΔFf B\* 320 °C 1721. Infrared ĸ Viscosity Solubility in c centistokes Acetone to 0 °C 6.69 Carbon tet. œ •c 20 4.37 2 Benzene A' | 20 to 40 2.96 2 7.317 5 Ether œ 60 2,10 B' (165 °C 2032. 5 n-Heptane œ -10 C 181. 5 75<u>7</u>. 56 to 4 Ethanol œ A | 50 °C A<sup>1\*</sup> 25 to B<sup>1\*</sup> 165 °C ₹. 05252 4 Water 1.9563 (B<sup>V</sup>) 50 to Water in 1946. 689,68 4 (AV) 110 °C Viscosity Ac | to Z. 25236 4 Bc •c centistokes cp liq. 80°C 1.59 2 Сc 100 1.26 2 cp vap.300°K Cryos. A\* 0.35981 consts. B. 0.47255 c<sub>v</sub> vap. te °C 311.4 5 grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula API SOURCE: PURIFICATION: API LITERATURE REFERENCES:

NAME	n-Und	decylcycl	opentane		STRUCTURAL FORMULA				
	1-Cyc	lopentyl	undecane		HaC CHCII H23				
Mole % Pur.	Ref.	Molecula Formula	r C <sub>16</sub> H <sub>32</sub>	Molecular Weight 224.416		CHC <sub>II</sub> H <sub>23</sub> H <sub>2</sub> C CH <sub>2</sub> H <sub>2</sub> C CH <sub>2</sub>			
		Ref.			Ref.			Re	
F.P. *C F.P. 100	-10. %	2	dt/dP °C/mm			f to g*K	]		
B. P. *C 760 mm	296.	2	25°C BP t <sub>e</sub>	8312.7 0.0632 0.0373	5 5	h   to	-	$\vdash$	
100 30 10	216. 180. 153.	2 4 5	30 mm	0.8883	4	g' <u>*K</u>			
l Pressure	108.	5	ΔHm cal/g ΔHv cal/g 25°C	01.05	5	m   300 to	-0.0890 0.0018		
mm 25°0	0.001 1498.	103 5	30 mm BP	91.95 68.33 54.28	5 5	m' 700 to	-0.0695	4	
Density g/ml 20° at 25	C 0.813		te te (d, e)	50.73 50.02	5 5	n'   1000 •K	0.0741 0.0012 -0.0 <sub>6</sub> 41		
d <sub>4</sub> 25 30	0.806	55 4	ΔHv/T <sub>e</sub>	18.84 90.23	5	Surface tension dynes/cm. 20°C	27.63	5	
b Ref. Inde	-0.037		e 325 °C d' 25 to e' 180 °C	0.1215 95.75 0.1521	5 5	30 40	26, 70 25, 78	5	
<sup>n</sup> D 20° 25 30	C 1.450 1.448 1.445	32 2	d g/ml vc ml/g tc °C	465.2	5	Parachor [P] 20°C 30			
"C" MR (Obs.	0.733	86 4	P <sub>c</sub> mm	10554.	5		632.5	5	
MR (Calc (nD-d/2)		3   5	PV/RT 25°C 30 mm	1.0000	5	Exp. L.1.%/wt. u. Dispersion	97.	2	
Dielectri	6,974	-	BP t <sub>e</sub>	0.9170 0.8908	4 5	Flash Point *C Fire Point	//.	-	
B 1 350 °	157.	2 2	t <sub>c</sub> ΔHc kcal/m ΔHf	2354.89	2	M. Spec. Ultra V.			
A*  180 t B*  340 ° K		5 5	ΔFf Viscosity			X-Ray Dif. Infrared		Ļ	
	c		centistokes 7 0 °C 20	8.19 5.25	2 2	Solubility in TACETONE Carbon tet.	<b>80</b>		
A'   25 t B'   180 °	7.320	5 5	40 60	3.49 2.44	2 2	Benzene Ether n-Heptane	80 80 80		
A'* 25 t	178. 0 1.982		B <sup>V</sup> -10 to A <sup>V</sup>   50 °C	792.45 2.01266	4	Ethanol Water Water in	oc		
	0	5	(B <sup>V</sup> )  50 to	730, 87 \overline{Z}, 19391	4	Viscosity		t	
Bc tc			c <sub>p</sub> liq. °K			centistokes 80°C 100	1.81		
Cryos. A	<u>'</u>		c <sub>p</sub> vap.300°K 400 c <sub>y</sub> vap.	0.36183 0.47394	2 2	100	1.42	1	
t <sub>e</sub> °C	331.1	5	-v	<u> </u>		grams/100 gr	ams solver	l nt	
	ICES: 1-De	ow 2-A	PI 3-Lit. 4-	Calc. from de	et. da	ta 5-Calc. by fo	rmula		
REFERE		API							
REFEREI SOURCE:									

No. 32 NAME n-Dodecylcyclopentane STRUCTURAL FORMULA H2C CHC12 H25 1-Cyclopentyldodecane нас-сна Molecular C17H34 Molecular Mole Ref. Weight 238,442 % Pur Formula Ref Ref Ref. 2 F.P. C F.P. 100% -5. dt/dP f to \*C/mm g <u>•</u>K\_ 25°C 26542. B. P. \*C h ВP 0.0645 2 760 mm 2 312. 0.0373 f 5 100 to 230. g' •K 30 194. 4 30 mm 0.9067 4 10 166. h' ∆Hm cal/g 120. -0.0825 300 to ΔHv cal/g m Pressure 600 °K 0.0018 n 4 25°C 93.70 5 mm 25°C 0.03298 o -0.0693 30 mm 66.87 5 1530. 5 t<sub>e</sub> ВP 52.64 5 5 700 to 0.0766 m' ١ Density te te (d, e) 48.97 n' 1000 °K 0.0012 g/ml 20°C 0.8158 2 48.19 5 ٥' 0.8123 -0.0<sub>6</sub>41 4 25 2  $d_4^t$ AHV/T 18.77 5 30 0.8088 4 Surface tension 1 195 90.25 5 to 0.8298 -0.0<sub>3</sub>70 4 dynes/cm. 20°C 27.86 1 340 25 •c 0.1205 97.67 5 e h 30 ď٠ 5 26.92 to 1 40 e¹ 26.00 5 Ref. Index 195 •c 0.1588 5 20°C 1.4518  $\mathbf{n}_{\mathbf{D}}$ 2 Parachor [P] d<sub>c</sub> g/ml 25 1.4497 2 20°C vc ml/g tc °C 30 1.4470 4 30 476.7 5 40 "C" 0.7322 4 P<sub>c</sub> mm 9718. 5 Sugd. 671.5 5 MR (Obs.) 78.82 2 PV/RT Exp. L.1. %/wt. MR (Calc.) 78.506 5 1.0000 25°C u. 5 (nD-d/2) 2 1.0439 30 mm 1.0000 Dispersion 97. 2 Dielectric 2.108 5 BP 0.9116 5 Flash Point °C t<sub>e</sub> 0.8837 5 A 195 to 6.985 2 Fire Point tc 1900. B 1365 °C 2 M Spec. C 2 151. AHc kcal/m 2501.82 Ultra V. ΔHf A# 195 to 1.670 5 X-Ray Dif. ΔFf B+ 360 °C 1821. Infrared ĸ Viscosity Solubility in c centistokes Acetone to 0 °C t | 9.92 2 Carbon tet. œ •c 20 6.25 2 Benzene 4.08 2 40 A' | 20 to 7,332 5 Ether 00 B' 1195 °C 60 2,80 2147. 5 n-Heptane 00 5 1-10 173 825.39 4 Ethanol 00 AV | 50 °C 3.97532 Water A1# 25 to 4 2.017 5 Water in B'# 195 °C (B<sup>V</sup>)| 50 to 2063. 764.01 4 Ac to (A<sup>V</sup>)| 110 °C Z. 15422 4 Viscosity Bc •c centistokes cp liq. ۰ĸ Cc 80°C 2.05 2 100 1.59 2 Cryos. Aº cp vap.300°K 0.36357 2 consts. B. 0.47517 c, vap. te °C 348.9 5 grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API API PURIFICATION: LITERATURE REFERENCES:

No. 33

NAME	n-Tride	vlcvo	lopentane			STRUCTURAL	FOR MILL		
NAME	·		ltridecane	$\neg$	CHC13H27 H2C CH2				
			· · · · · · · · · · · · · · · · · · ·			HSC CHS			
Mole % Pur.	Ref. Mo	lecul:		Molecular Weight 252,46	8	H2ČC	H <sub>2</sub>		
	<b>.</b>	Ref.			Ref.			Ref	
F. P. *C	5	2	dt/dP			f to			
F.P. 100%	•	-	*C/mm 25*C	79840.	5	g '° <u>K</u>			
B. P. *C 760 mm	327.	2	BP	0.0657	5	h		<u> </u>	
100	244.	2	t <sub>e</sub>	0.0371	5	f' to		ĺ	
30 10	207.	4 5	30 mm	0.9255	4	8' <u>*K</u>		l	
1	131.	5	ΔHm cal/g			h'	0.02/2	+-	
Pressure			ΔHv cal/g	04.00		m   300 to	-0.0767 0.0017		
mm 25°C	0.0 <sub>4</sub> 924 1581.	5	25°C 30 mm	94.88	5	0	-0.0690		
t <sub>e</sub>	1561.	1,	BP	51.59	5	m¹   700 to	0.0789	4	
Density g/ml 20°C	0.8178	2	t <sub>e</sub> (d, e)	47.80 47.09	5	∥ n'ı  1000 °K	0.0012	4	
<sub>a</sub> t 25	0.8143	2	ΔHv/T	18.86	5	0'	-0.0 <sub>6</sub> 41	4	
	0.8108	4	d 205 to	88.75	5	Surface tension			
a b	0.8318 -0.0 <sub>3</sub> 70	4 4	_e_ _3 <u>60 °C</u>	0.1136	5	dynes/cm. 20°C	28.06 27.11	5	
Ref. Index		+	d'   25 to e'   205 °C	98.95 0.1630	5	40	26.18	5	
n <sub>D</sub> 20°C	1.4531	2	<del></del>	0.1030	<del>                                     </del>	Parachor [P]			
25 30	1.4510 1.4490	2	d <sub>c</sub> g/ml v <sub>c</sub> ml/g t <sub>c</sub> °C		1	20°C		Į	
"C"	0,7334	4	tc ℃	488.2	5	40		ļ	
MR (Obs.		2	P <sub>c</sub> mm	9025.	5		710.5	5	
MR (Calc.		5	PV/RT	, ,,,,,,,	5	Exp. L.1.%/wt.		1	
(nD-d/2)	1.0442	2	25°C 30 mm	1.0000	5	u. Dispersion	97.	2	
Dielectric	<del></del>	5	BP	0.9174	4	Flash Point C			
A 205 to		2	t e t c	0.8881	5	Fire Point			
B 1_385 °C	1945. 146.	2 2	ΔHc kcal/m	2648.74	2	M. Spec.			
A# 205 to	1,684	5	ΔHf			Ultra V. X-Ray Dif.			
B*  375 °C	1862.	5	ΔFf	ļ	<del> </del>	Infra red			
K — — -		1	Viscosity centistokes		1	Solubility in +	ļ		
t <sub>k</sub>		1	η 20 °C	7.39	2	Acetone Carbon tet.	80 80		
<u>, x  </u>		4	40 60	4.74 3.20	2 2	Benzene	œ	ļ	
A'   20 to B'   205 °C		5	80	2, 31	2	Ether n-Heptane	ec		
c'	168.	5	B <sub>v</sub> 10 to	887.77	4	Ethanol	<b>®</b>		
A** 25 to		5	A 1 70 ℃	3.84077	4	Water Water in			
B'* 205 °C		5	(B <sup>V</sup> )  70 to	792.48	4			+	
Acl to Bc: t- *C			(A <sup>V</sup> )  110 °C	2.12228	4	Viscosity centistokes			
Bc t <sub>c</sub> C	-1		c <sub>p</sub> liq. *K	1		100°C	1.77	2	
Cryos. A			cp vap300°K	0.36512	2	110	1.55	2	
consts. B		—	P 400 c vap.	0.47626	2				
t <sub>e</sub> °C	366.6	5		1	1	grams/100 gra	ms solver	 nt	
REFEREN	CES: 1-Dow	2-A	PI 3-Lit. 4-	Calc. from de	et. da	ata 5-Calc, by for			
SOURCE:		API				<u></u>			
PURIFICA	TION:	API							
	JRE REFERI	ENCE	S:						

No. 34 n-Tetradecylcyclopentane STRUCTURAL FORMULA NAME CHC14H29 H2C CH2 H2C—CH2 1-Cyclopentyltetradecane Molecular C19H38 Ref. Molecular Mole Weight 266.494 % Pur. Ref. Ref Ref. F.P. \*C F.P. 100% 9. 2 dt/dP to °C/mm <u>°</u>K g 25°C 244430. B. P. °C h 0.0668 BP 5 341. 2 760 mm f' 5 t<sub>e</sub> 0.0371 to 100 256. 2 g' \_K 30 219. 4 30 mm 0.9420 4 190. 10 h' ∆Hm cal/g 142. 5 1 300 to -0.0713 ΔHv cal/g Pressure n 1\_600 °K 0.0017 25°C 96.32 5 0.0428 mm 25°C 5 -0.0688 4 o 30 mm 63.81 5 5 te 1614. 5 BP 50.24 700 to 0.0811 Density g/ml 20°C m' te (d, e) 46.34 5 11000 °K 0.0012 n' 0.8196 2 5 45.63 o' -0.0641 4 0.8162 dt4 25 2 ΔHv/Te 18.83 5 30 0.8128 4 1 220 Surface tension ď to 88.05 5 0.8332 -0.0<sub>3</sub>68 220 <u>1 37</u>5 d' 4 dynes/cm. 20°C 28.23 <u>•c</u> 0.1109 5 Ъ 30 5 5 27.31 26.40 25 to 100.52 40 e¹ Ref. Index 220 0.1679  $\mathbf{n}_{\mathbf{D}}$ d g/ml 20°C 1.4543 2 [P] Parachor 25 1.4522 2 20°C ml/g 30 1.4503 4 tc \*C 30 499.2 5 40 "C" 0.7337 4 P<sub>c</sub> mm 8481. 5 Sugd. 749.5 5 MR (Obs.) 88,10 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 88.742 25°C 1,0000 5 (nD-d/2) 1.0445 2 30 mm 1.0000 Dispersion 97. 2 5 Dielectric 2,115 5 BP 0.9158 4 Flash Point °C 220 to 7.003 t<sub>e</sub> 0.8845 5 2 Fire Point tc B 1400 °C 1987. 2 M Spec. С 141. 2 AHc kcal/m 2795.66 2 Ultra V ΔHf A\* 220 to X-Ray Dif. 1.713 5 ΔFf B\* 1390 °C 1905. Infrared Viscosity Solubility in c centistokes Acetone to 20 °C 8,67 2 Carbon tet. •c œ 5.47 40 2 Benzene 00 2 A' 20 to 60 3.63 Ether 7.351 5 00 80 2.59 2 B' 1220 °C 2245. 5 n-Heptane œ вv C١ 5 10 923.48 3.78836 164. 4 to Ethanol A | 70 •c A'\* 25 to B'\* 220 °C 4 Water 2,078 5 Water in (BV) 70 2164. 5 813.43 4 (A<sup>V</sup>)| 120 Acl to °C 2.11027 4 Bc •c Viscosity cp liq. ۰ĸ centistokes 100°C 1.96 2 c<sub>p</sub> vap300°K Cryos. Aº 0.36654 0.47723 110 1.71 2 consts. B° 400 c, vap. te °C 382.6 5 grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

NAME	n-Pentad	ecylcy	yclopentane		STRUCTURAL FORMULA				
	l-Cyclop	entylp	entadecane						
Mole % Pur.	Ref. Mo	lecul: rmula	Molecular Weight 280.520		0	H <sub>2</sub> C CH <sub>2</sub> H <sub>2</sub> C — CH <sub>2</sub>			
	···	Ref			Ref.			Ref	
F. P. *C	17.	2	dt/dP			f to			
F.P. 1009	•		°C/mm			g  K			
B. P. *C		$\Box$	25°C	794272.	5	h			
760 mm	355.	2	BP	0.0679 0.0371	5	f' to			
100 30	269. 231.	2 4	t <sub>e</sub>		5	g'*K			
10	201.	5	30 mm	0.9585	-	h'			
1	152.	5	AHm cal/g		<u> </u>	m   300 to	-0.0667	4	
Pressure			ΔHv cal/g 25°C	00.12		n   600 °K	0.0017		
mm 25°C	0.0581	5	30 mm	98.13 62.51	5	0	-0.0686	4	
t <sub>e</sub>	1649.	5	BP	49.04	5	m' 700 to		├	
Density			t <sub>e</sub> (d, e)	45.05	5	m'  700 to n'  1000 <u>*</u> K	0.0847 0.0012	4	
g/ml 20°C	0.8213	2 2		44.33	5	0'   4.0	-0.0641	4	
d <sup>t</sup> 25 4 30	0.8143	4	ΔHv/T <sub>e</sub>	18.81	5				
a	0,8353	14	d 230 to	87.46	5	Surface tension dynes/cm. 20°C	28.40	5	
ь	-0.037	4		0.1082	5	<b>8</b> 30	27.45	5	
Ref. Index		$\vdash$	d' 25 to e' 230 °C	102.46 0.1733	5	40	26.51	5	
n <sub>D</sub> 20°0	1.4554	2		0.1.33	-	Parachor [P]			
- 25	1,4533	2	d g/ml			20°C		1	
30	1.4513	4	vc ml/g tc °C	507.2	5	30 40		l	
"C"	0.7339	4	P <sub>c</sub> mm	7723.	5		788.5	5	
MR (Obs.)		2	PV/RT	<del> </del>	<b>†</b> • • •	Exp. L.1.%/wt.	-		
MR (Calc. (nD-d/2)	92.360	5 2	25°C	1.0000	5	u.			
			30 mm	1.0000	5	Dispersion	97.	2	
Dielectric		5	BP	0.9146 0.8822	4 5	Flash Point C			
A 230 to B 410 °C		2 2	t e t c	0.8822	1	Fire Point			
C 1310 C	136.	2	ΔHc kcal/m	2942.58	2	M. Spec.			
A* 230 to		5	ΔHf	2712.30	-	Ultra V. X-Ray Dif.			
B*  405 °C		5	ΔFf		ļ	Infrared		1	
к ——-	-  ' '		Viscosity		1	Solubility in +		T -	
t,	-1		centistokes 7 30 °C	7.00	١,	Acetone	• • • • • • • • • • • • • • • • • • •		
t <sub>k</sub>   to			7 30 °C	7.88	2.	Carbon tet.	<b>∞</b>		
A'   25 to	7,362	5	60	4.09	2	Benzene Ether	<b>∞</b>		
B' 230 °C		5	80	2, 89	2	n-Heptane	<b>80</b>	1	
с, <sup>—</sup> — -	159.	5	B <sup>V</sup> 20 to A <sup>V</sup> 70 °C	959.11	4	Ethanol	œ	1	
A1# 25 to		5		3.73324	4	Water Water in			
B'* 230 °C	2213.	5	(B <sup>V</sup> )  70 to	842.49	4	water in	· · · · · · · · · · · · · · · · · · ·	╁	
Acl to			(A <sup>V</sup> )  120 °C	₹. 07561	4	Viscosity	}		
Bc tc C	_		c <sub>p</sub> liq. °K		1	centistokes 100°C	2.14	١,	
	, +	+		0.2/22/		110	2.16	2	
Cryos, A'consts, B'			c <sub>p</sub> vap.300K 400	0.36778					
t <sub>e</sub> °C	398.53	5	c <sub>v</sub> vap.						
						† grams/100 gra		ıt	
	CES: 1-Dow			Calc. from de	et. de	ata 5-Calc. by for	mula		
SOURCE:		AP		<del> </del>					
PURIFICA	TION:	AP	'I						
LITERATI	JRE REFERE	ENCE	5:						

n-Hexadecylcyclopentane STRUCTURAL FORMULA NAME CHC16H33 H2C CH2 H2C-CH2 1-Cyclopentylhexadecane Molecular C21H42 Molecular Ref. Mole Weight 294.546 % Pur. Ref. Ref Ref F.P. \*C F.P. 100% 21. 2 dt/dP to °C/mm •ĸ g 2.3×10<sup>6</sup> 25°C 5 B. P. \*C h 0.0690 5 BP 760 mm 368. 2 0.0370 5 ſ to 100 280. 2 g' °K 30 241. 30 mm 0.9750 5 4 10 212. 2 h' AHm cal/g 1 162 4 300 to 0.0625 4 ١ AHv cal/g Pressure n 600 °K 0.0017 25°C 99.15 0.0526 1 mm 25°C 5 -0.0685 o 30 mm 61.08 5 1687. te 5 5 ВP 47.89 0.0849 700 to Density g/ml 20°C m t<sub>e</sub> (d, e) 43.89 5 11000 °K 0.0012 'n 0.8228 2 43.14 5 o' -0.0641 4 dt4 25 0.8194 2 AHv/Te 18.82 5 30 0.8160 4 Surface tension 1 240 d 86, 21 5 to 0.8364 -0.0<sub>3</sub>68 e | 410 d' 4 dynes/cm. 20°C 28.55 •c 0.1041 5 ь 4 30 27.62 5 to 103.55 5 e¹ 40 26.71 5 Ref. Index 240 0.1759 20°C 1.4564 2 [P] n<sub>D</sub> d g/ml vc ml/g tc °C Parachor 25 1.4543 2 20°C 30 1.4524 4 30 517.5 5 40 "C" 0.7340 4 P<sub>c</sub> mm 7302. 5 Sugd 827.5 5 MR (Obs.) 97.38≠ 2 PV/RT Exp. L.1. %/wt. MR (Calc.) 96.978 5 1.0450 25°C 1,0000 (nD-d/2) 2 30 mm 1,0000 97. 2 5 Dispersion Dielectric 2,121 5 ΒP 0.9151 5 Flash Point °C 0.8828 A 240 to 5 7,021 te 2 Fire Point tc 2070. B 430 °C 2 M Spec. С 132. 2 AHc kcal/m 3089.51 2 Ultra V ΔHf A\* | 240 to 1.758 2 X-Ray Dif. ΔFf B+ 420 °C 1986. Infrared Viscosity Solubility in c centistokes Acetone to 30 °C 9.04 2 ·c Carbon tet. œ 40 7.14 2 Benzene 60 4.60 2 A' | 25 to 7.370 Ether œ 80 3.21 2 B' [240 °C 2339. 5 n-Heptane 00 C 156. 5 20 to 988.07 4 Ethanol 00 A 70 °C 3.69736 Water 4 A1# 25 to 2.135 5 B' # 240 °C (BV) 70 to Water in 2261. 5 869.10 4 (AV) 120 °C Aci to Z. 04496 Viscosity Bc •c centistokes cp liq. ۰ĸ Сc 100°C 2.38 2 110 2.06 2 cp vap.300°K Cryos. A\* 0.36894 2 consts. B. 0.47891 2 400 c, vap. te C 413.62 5 for undercooled liquid grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

		n - Her	tadecul	cyclopentane				No. 3			
NAME						STRUCTURAL FORMULA					
ļl		I-Cyc	lopenty	lheptadecane		СНС <sub>17</sub> Н35 Н2Ç СН2					
Mole	F	tef. I	Molecul	C22H44	Molecular	İ	H <sub>2</sub> C — CH <sub>2</sub>				
% Pur.		1	Formula	22"44	Weight 308.5	72					
	-		Ref.			Ref.			Ref.		
F. P. *C	27	<u>'.                                    </u>	2	dt/dP			f to				
F.P. 1009	<u>*</u>			*C/mm 25*C	5.68x10 <sup>5</sup>	5	g '° <u>K</u>				
B. P. *C 760 mm	380		2	BP	0.0699	5	h		+		
100	290		5	t <sub>e</sub>	0.0363	5	f' to				
30	249		5	30 mm	1.0284	5	g' <u>K</u>				
10	164		5	ΔHm cal/g			h'				
Pressure				ΔHv cal/g			m to				
mm 25°C		0.041		25°C 30 mm	75.17 56.95	5	o				
t <sub>e</sub>	1724	١,	5	BP	46.89	5	m' to		+-		
Density g/ml 20°	, ا	824	, <b>#</b>   ,	te te (d, e)	43.47 43.26	5	n'   L*K				
dt 25 4 30	٦   ۵	820	1		19.15	5	o'				
4 30	0	817	3 4	ΔHv/T <sub>e</sub>	<b>.</b>		Surface tension				
		837		d 250 to	76.11 0.0769	5	dynes/cm. 20°C	28.68	5		
b		0.036	• •	d 25 to	77.20	5	8 30 40	27.74 26.83	5		
Ref. Inde:		457	,ŧ ,	e' 250 °C	0.0813	5	Parachor [P]	20.03	+-		
25		. 457	2	d g/ml vc ml/g t °C		ŀ	20°C		1		
30		. 453		ις •C •	525.	5	30 40				
"C"		734		P <sub>c</sub> mm	7031.	5	B	866.5	5		
MR (Obs. MR (Calc	1 101	2.02 <sup>≠</sup> 1.596	اءا	PV/RT			Exp. L.1.%/wt.				
(nD-d/2)	. / 101	. 045	2 <sup>#</sup>   2	25°C 30 mm	1.0000	5	u.	97.#	2		
Dielectric		. 123	5	BP BP	0.9165	5	Dispersion	97.			
A 250 to	, 7	7.377	12 5	t.	0.8846	5	Flash Point *C Fire Point		1		
B 1445 °C			5	tc	<b></b>	ļ	M. Spec.		+		
A* 250 to	170		5	ΔHc kcal/m ΔHf		İ	Ultra V.				
B*[435 °C		2.1048 3.7	88   5	ΔFf			X-Ray Dif. Infrared				
к — —	_	•		Viscosity		Ì	Solubility in +		+		
t <sub>k</sub> to	<del>-</del>		İ	centistokes り *C		1	Acetone	oc			
K			ŀ	,			Carbon tet. Benzene	<b>80</b>			
A'   25 to		7.748				1	Ether	- wo			
B' 1250 '	C 2794 196		5	B <sup>V</sup> to	<u> </u>	t	n-Heptane Ethanol	<b>60</b>			
A'+ 25 to		. 484		B <sup>V</sup> to C		1	Water	oc	1		
B'+250 *			8 5	(B <sup>V</sup> )  to	-	1	Water in		4		
Acl to	s			(A <sup>V</sup> )  °C	1			1			
Bc tc				c <sub>p</sub> liq. °K		I	1				
Cryos. A	. —			li		1					
consts. B				P	*						
te °C	427		5	c <sub>v</sub> vap.	1	<u></u>	1, 1, 2	L			
# for und				DI 3 144 4	Cala farm 1		grams/100 gra ata 5-Calc. by for		nt		
	UES:	1-00		F1 3-L1t. 4-	Caic, from de	ετ. da	sta 3-Caic, by 101	inuis			
SOURCE:	TION		API	<del></del>							
PURIFICA											
LITERAT	ORE R	ere.	RENCE!	<b>&gt;</b> :							
ŀ											

No. 38 n-Octadecylcyclopentane STRUCTURAL FORMULA NAME CHC18 H37 H2C CH2 H2C-CH2 1-Cyclopentyloctadecane Molecular C23H46 Molecular Ref. Mole Weight 322.598 % Pur Ref Ref Ref. F.P. °C F.P. 100% 30. 2 dt/dP to \*C/mm °K g 1.06x10<sup>6</sup> 25°C B. P. °C 5 h BP 0.07076 5 760 mm 391. 2 ſ١ 0.0362 5 to 100 300. 5 g' ۰ĸ 30 mm 30 1.0448 5 258. 5 10 226. 5 h' ∆Hm cal/g 1 172. to ΔHv cal/g Pressure n ۰ĸ 25°C 73.51 55.51 5 mm 25°C 0.05704 5 o 30 mm te 1755. 5 45.81 ВP 5 Density m 1 to t<sub>e</sub> t<sub>e</sub> (d, e) 42,40 5 ٠ĸ g/ml 20°C n' 0.8254 0.8220 2 42.23 5 o'  $d_4^t$ 25 ΔHv/Te 5 19.18 30 0.8186 4 1 260 Surface tension d 74.40 5 to 0.8390 -0.0368 dynes/cm. 20°C 28,81 1 440 •c 0.0731 5 ь 27.87 26.96 5 30 ď٠ 25 to 75.44 5 1 5 40 Ref. Index 260 0.0771 20°C 1,4581 [P] n<sub>D</sub> Parachor d g/ml vc ml/g tc °C 1.4560 25 2 20°C 30 1.4541 4 30 531. 5 40 "C" 0.7343 4 P<sub>c</sub> mm 6541. 5 Sugd 905.5 5 MR (Obs.) 106.66<sup>#</sup> 2 PV/RT Exp. L.1. %/wt. MR (Calc.) 106, 214 1.0454<sup>#</sup> 25°C 1.0000 (nD-d/2)97. <sup>‡</sup> 30 mm 1.0000 Dispersion 2 5 Dielectric 2.126 BP 5 0.9169 5 Flash Point °C A | 260 to B | 460 °C 0.8846 t<sub>e</sub> 7.41131 Fire Point 5 tc 2541.6 M Spec. С AHc kcal/m 170. 5 Ultra V AHf 2.14959 A\* 260 to X-Ray Dif. ΔFf B\* 450 °C 2434.5 Infrared Viscosity Viscos.., centistokes °C Solubility in t<sub>x</sub> | Acetone to Carbon tet. •c Benzene 00 A' | 25 to 7.7852 Ether 00 2872. B' [260 °C 5 n-Heptane œ B<sup>V</sup> | C١ 197. 5 Ethanol to 00 •c Water A'\* 25 to 2.5346 Water in (BV) B'# 260 °C 2763. to Ac to (AV) °C Bc | cp liq. ۰ĸ Cc Cryos. A\* cp vap. °K consts. B° t<sub>e</sub> °C c, vap. 440. 5 # for undercooled liquid grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

NAME		n-No	nade	cylc	yclopentane			STRUCTURAL	FORMUI	
		l - Cy	clop	entyl	nonadecane			H2Ç Ç		
Mole		Ref.	Mo	lecul	ar C H	Molecular	$\exists$	H2C — C		
% Pur.			For	mula		Weight 336.62	<del></del>			D.C
	٠,			Ref.		<del> </del>	Ref.	1 1		Ref.
F.P. °C F.P. 100°		5		2	dt/dP °C/mm			f to		
B. P. °C	<del>"</del>			-	25°C	2.00×10 <sup>6</sup>	5	g• <u>K</u>		
760 mm	40	2.		2	BP	0.07157	5	h		+-
100	31	0.		5	t <sub>e</sub>	0.0345	5	f' to to <u>*K</u>		
30 10	26			5	30 mm	1.0608	5	h' i		
i	18			5	∆Hm cal/g		-	m   to		+
Pressure					ΔHv cal/g 25°C	72.03	5	n  •K		
mm 25°C	189	0. O <sub>5</sub>	364	5	30 mm	54.24	5	0		1
De-eite	107	1.		-	BP	46.83	5	m¹ to		
Density g/ml 20°	c	0.82	66 <sup>‡</sup>	2	te te (d, e)	43.57 43.84	5	n'   L _ •K		
dt 25		0.82	32'	2	ΔHv/T <sub>e</sub>	20.10	5	o'		
	<del></del>	0.81	98	4	d 270 to	68.97	5	Surface tension		
a b		0.84 0.03		4 4	e   450 °C	0.0551	5	dynes/cm. 20°C	28.93	5
Ref. Inde		J. 03		$\vdash$	d' 25 to	73.86 0.0734	5	8 30 40	27.99 27.08	5
n <sub>D</sub> 20°	<u> </u>	1.45	88 <sup>‡</sup>	2	<u> </u>	0.0734	-	Parachor [P]		
25	- 1	1.45	68'	2	d <sub>c</sub> g/ml v <sub>c</sub> ml/g t <sub>c</sub> °C			20°C		
30		1.45		4	ະ <sub>ເ</sub> ີ•C	542.	5	30 40		
"C"		0.73		4	P <sub>c</sub> mm	6403.	5		944.5	5
MR (Obs. MR (Calc.	1 11	1.30 0.83	2	2 5	PV/RT			Exp. L.1.%/wt.		
(nD-d/2)	.,	1.04	56 <sup>‡</sup>	Ž	25°C 30 mm	1.0000	5	u.	97.#	١.
Dielectric		2.12		5	BP	0.9572	5	Dispersion	97.	2
A 270 to	,	7.44	786	5	t <sub>e</sub>	0.9315	5	Flash Point *C Fire Point		
B 1475 °C				5			Ш	M. Spec.		+
C	17			5	ΔHc kcal/m ΔHf			Ultra V.		
A*  270 to B*  465_°(		2.11 8.4	794	5	ΔFf			X-Ray Dif. Infrared		ļ
к — -	- -	•. •			Viscosity			Solubility in +		+
t, to	-				centistokes			Acetone	•o	
t <sub>k</sub>   to					η ·c			Carbon tet. Benzene	<b>60</b>	1
A'   25 to	,	7.82	40	5				Ether	ec ec	
B' 1270 °C	295	2.		5	BY I	<b> </b>	$\vdash$	n-Heptane	∞	1
	19		/1	5	B <sup>V</sup> to C			Ethanol Water	<b>*</b>	
A'* 25 to B'*270 °C		2,58 2,	01	5	(B <sup>V</sup> )  - to	-		Water in		
Acl to		<u> </u>		Ť	(A <sup>V</sup> )  °C					
Bc tc *C						<b>†</b>	+		Ì	
					р -					
Cryos. A consts. B					c <sub>p</sub> vap. *K					
t <sub>e</sub> °C	45		,,	5	c <sub>v</sub> vap.	<u> </u>		+ (100	L	<u></u>
≠ for und					DV 3 V 1	Cala (		grams/100 gra		nt
REFEREN	CES:	1-D			P1 3-Lit. 4-	Caic. Irom de	t. da	ta 5-Calc. by for	muia	
SOURCE:				PI					-	
PURIFICA				PI						
LITERAT	UKE I	REF I	LKE)	NCE	<b>&gt;</b> :					

No. 40 STRUCTURAL FORMULA NAME n-Eicosylcyclopentane CHC20H41 H2C CH2 H2C - CH2 l-Cyclopentyleicosane Molecular C25H50 Molecular Weight 350,650 Ref. Mole % Pur Ref. Ref. 38. 2 F. P. \*C dt/dP f to F.P. 100% °C/mm g \_ <u>°</u>K 5.24x10<sup>6</sup> 25°C 5 B. P. \*C h BP 0.07112 5 760 mm 413. 2 0.0343 5 f t<sub>e</sub> to 100 321. 5 g' •ĸ 30 279. 5 30 mm 1.0667 5 10 246. h' ١ ∆Hm cal/g 190. 5 to ΔHv cal/g m Pressure •ĸ n 71.84 25°C 5 mm 25°C 0.05134 0 30 mm 53.92 5 1876. 5 t<sub>e</sub> ВP 45.89 5 1 to Density 42.54 5 te (d, e) g/ml 20°C n' ۰ĸ 0.8276 5 42.70 0.8242 ٥' 25 2  $\mathbf{d_4^t}$ AHv/T 5 20.17 30 0.8208 4 Surface tension 1 280 d to 70.56 5 0.8412 -0.0368 29.03 dynes/cm. 20°C 5 <u> 1 455</u> •c 0.0597 5 ь 30 28.09 5 2.5 to 73.60 5 1 27, 17 40 5 Ref. Index ٠c 0.0707 e' 280 5 1.4595 20°C (P) 2  $\mathbf{n}_{\mathbf{D}}$ Parachor 1.4575 dc g/ml vc ml/g tc °C 25 2 20°C 30 4 1.4554 30 545. 5 40 "C" 0.7344 4 P<sub>c</sub> mm 5959. 5 983.5 5 Sugd. 115.94<sup>#</sup> MR (Obs.) 2 PV/RT Exp. L.1. %/wt. MR (Calc.) 115.450 25°C 1.0000 5 1.0457 (nD-d/2)u. 2 97.<sup>‡</sup> 30 mm 1.0000 2 Dispersion Dielectric 2.130 0.9406 0.9118 5 BP 5 Flash Point °C t<sub>e</sub> 280 to 7.56514 2731.0 Fire Point 5 ťc 485 °C M Spec. Ultra V. 170. C AHc kcal/m ΔHf A\* 280 to 2.27815 5 X-Ray Dif. ΔFf B\* 475 °C 2598.6 Infrared ĸ Viscosity Solubility in centistokes Acetone t<sub>k</sub> | Carbon tet. •c 00 Benzene œ to 7,9487 Ether œ B١ \_280 °C 3086. 5 n-Heptane œ ВŸ C١ 198. 5 to Ethanol œ ÃV I •c Water A1# 25 to 2.7216 5 Water in B'# 280 °C 2974. (BV) to Ac| to (AV) •c t<sub>c</sub>\_ Bc •c cp liq. ۰ĸ Cc Cryos. Aº •ĸ c<sub>p</sub> vap. consts. B. c, vap. te .C 466. ≠ for undercooled liquid grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

r							No. 41
NAME	n-Henei	cosyl	cyclopentane			STRUCTURAL	FORMULA
	l -Cyclo	penty	lheneicosane			н⁵с_сн	C21 H43
Mole	Ref. Mo	11		Molecular	Ì	H2C — C	
% Pur.	Fo:	mula		veight 364,67	6	20	,
		Ref.			Ref.		Ref
F. P. *C	42.	2	dt/dP			f to	
F.P. 100%			°C/mm	6		g  •K_	
B. P. *C			25°C BP	6.9x10 <sup>6</sup> 0.07306	5	h	
760 mm 100	423. 328.	2	t <sub>e</sub>	0.0343	5	f' to	
30	285.	5	30 mm	1.0907	5	g' ' <u>*K</u>	i i
10	252. 195.	5	∆Hm cal/g			h'	ļ
Pressure		m	ΔHv cal/g			m to	
mm 25°C	0.05101	5	25°C 30 mm	69.31 51.93	5		
t <sub>e</sub>	1950.	5	<b>B</b> P	44.94	5	m' to	
Density g/ml 20°C	0.8286	2	t <sub>e</sub> (d, e)	41.69 42.03	5	n'   °K	]
t 25	0.8252*	2	ΔHv/T <sub>e</sub>	20,17	5	o'	
<sup>a</sup> 4 30	0.8218	4	d 285 to		5	Surface tension	
a b	0.8422 -0.0 <sub>3</sub> 68	4	e 470 °C	66.40 0.0507	5	dynes/cm. 20°C	29.13 5
Ref. Index	<del>                                     </del>	Ė	d' 25 to	70.98	5	40	28.19 5 27.27 5
n <sub>D</sub> 20°C	1.4602	2	1	0.0668	5	Parachor [P]	
25 30	1.4582	2	d g/ml vc ml/g			20°C	
"C"	1.4562	4	vc ml/g tc *C	553.	5	30 40	
	0.7345	4	P <sub>c</sub> mm	5559.	5		1022.5 5
MR (Obs.) MR (Calc.	1 120 060	2 5	PV/RT			Exp. L.1.%/wt.	
(nD-d/2)	1.0459	2	25°C 30 mm	1.0000	5	u. Dispersion	97. # 2
Dielectric	2.132	5	<b>B</b> P	0.9563	5	Flash Point C	† /··   -
A 285 to	7,51897	5	te tc	0.9301	5	Fire Point	
B  _500 °C C	_ 2750.4 170.	5	ΔHc kcal/m		├	M. Spec.	
A* 285 to	2,21011	5	ΔHf			Ultra V. X-Ray Dif.	
B* 490 °C		5	ΔFf		<del> </del>	Infrared	
K	ļ	İ	Viscosity centistokes			Solubility in +	
t <sub>k</sub> T to		l	η ·c			Acetone Carbon tet.	<b>80</b>
<u>                                      </u>		<u> </u>			]	Benzene	<b>®</b>
A'   25 to B'   285 °C		5		<u> </u>	L	Ether n-Heptane	ec ec
C'	199.	5	B <sup>V</sup> to A <sup>V</sup> C	İ		Ethanol	<b>®</b>
A1# 25 to		5				Water Water in	
B'* 285 °C		5	(B <sup>V</sup> )  to			1 200	1
Ac to Bc tc C		1	(A <sup>V</sup> )  •C	<del> </del>	—	4	
Cc			c <sub>p</sub> liq. *K	1	1	1	
Cryos, A° consts, B°			c <sub>p</sub> vap. *K				
f° .C	480.	5	c <sub>v</sub> vap.				
	ercooled liquid	1				grams/100 gra	ms solvent
REFEREN	CES: 1-Dow	2-A	PI 3-Lit. 4-	Calc. from de	t. da	ata 5-Calc. by for	rmula
SOURCE:		AF	PI .				
PURIFICA	TION:	AI	PI				
LITERATU	RE REFERE	NCE	s:				
1							

No. 42 STRUCTURAL FORMULA NAME n-Docosylcyclopentane CHC22H45 H2C CH2 H2C - CH2 1-Cyclopentyldocosane Molecular C27H54 Ref. Molecular Mole % Pur Weight 378,702 Rcf. Ref. 45. 2 dt/dP f to F.P. 100% °C/mm g °K 1.26x107 25°C 5 B. P. \*C h 0.07375 BP 5 760 mm 433. 2 0.0340 5 ſ١ to 100 te 337. 4 g' \_ĸ 30 294. 5 30 mm 1.1048 5 10 260. 5 h' ∆Hm cal/g 202. m to ∆Hv cal/g Pressure •ĸ n 25°C 68.04 5 mm 25°C 0.06546 o 30 mm 5 50.88 1985. 5 te BP 44,20 5 to Density 5 te (d, e) 40.96 n' ٠ĸ g/ml 20°C 0.8295 0.8262 5 41.37 ۱0 25  $d_4^t$ ΔHv/T 5 20, 27 0.8229 30 4 Surface tension 1 295 d 64.96 5 to 0.8427 -0.0366 29.23 dynes/cm. 20°C •c 0.0479 5 <u> 1 475</u> Ъ 4 dı-30 28.31 5 to 25 69.64 5 1 40 27.41 5 e¹ ٠c Ref. Index 295 0.0639 20°C 1.4608 [P]  $\mathbf{n}_{\mathbf{D}}$ Parachor 1.4588 d<sub>c</sub> g/ml 25 20°C ml/g 30 t<sub>c</sub> 1.4568 4 30 ·c 561. 5 40 "C" 0.7346 4 P<sub>c</sub> mm 5343. 5 Sugd. 1061.5 5 MR (Obs.) 125,22# 2 PV/RT Exp. L. l. %/wt. MR (Calc.) 124.686 1.0000 5 1.0460 25°C (nD-d/2)u. 30 mm 1.0000 97. <sup>‡</sup> Dispersion 2 Dielectric 2.134 5 BP 0.9584 5 Flash Point °C t<sub>e</sub> 0.9321 5 1295 to 7.55306 Fire Point t<sub>c</sub> B 1510 °C 2817.4 5 M Spec. С 170. 5 AHc kcal/m Ultra V ΔHf A\* | 295 to 2.24989 5 X-Ray Dif. ΔFf B+ 1500 °C 2663.0 Infrared Viscosity Solubility in c centistokes Acetone •c to Carbon tet œ •c Benzene A' | 25 to 7,9358 Ether 90 B' 1295 °C 3184. n-Heptane 80 C' 199 5 В to Ethanol ÃV 90 •c Water A'\* A'\* 25 to B'\* 295 °C 2.7329 5 (BV) Water in 3069. to (A<sup>V</sup>)| Ac | to °C Bc •c cp liq. •ĸ Сc Cryos. A\* cp vap. ۰ĸ consts. B° c<sub>v</sub> vap. t. °C 492. 5 for undercooled liquid grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det. data 5-Calc, by formula API SOURCE: **PURIFICATION:** API LITERATURE REFERENCES:

No. 43

NAME	n-Trico	sylcy	clopentane			STRUCTURAL	FORMUL	
	l-Cyclo	penty	ltricosane			H <sub>2</sub> C,CHI	Ç23 H47	
Mole % Pur.		lecul rmula		Molecular Veight 392.7	728	H2C C		
		Ref.	, — — — — — — — — — — — — — — — — — — —	 	Ref.			Ref.
F. P. °C	49.	2	dt/dP		1	f to		
F.P. 1009			°C/mm			g  K		
B. P. *C			25°C BP	2.2x10 <sup>7</sup> 0.0743	5 5	h		
760 mm 100	442. 345.	2	t <sub>e</sub>	0.0339	5	f¹ to		
30	301.	5	30 mm	1.1168	5	g' <u>*K</u>		
10	267. 208.	5	ΔHm cal/g			h¹ i		
Pressure	208.	13	ΔHv cal/g	İ		m to		
mm 25°C	0.0631	5	25°C	66.79	5	n		
te	2010.	5	30 mm BP	49.86 43.34	5 5			-
Density	4			40.09	5	m' to		
g/ml 20°C	0.83047 0.8270	2 2	t <sub>e</sub> (d, e)	40.54	5	"		
d <sub>4</sub> 30	0.8236	4		20.30	5	Surface tension		$\vdash$
a	0.8440	4	d 300 to	63.85 0.0464	5 5	dynes/cm. 20°C	29.32	5
ь	-0.0368	4	d 500 ℃ to	68.32	5	¥ 30	28.37	5
Ref. Index	- 1 1 44147	١,	e'   300 °C	0.0612	5	40	27.44	5
D 20°C	1.4614 1.4593	2	d <sub>c</sub> g/ml			Parachor [P] 20°C		1
30	1.4573	4	vc ml/g tc *C	563.	5	30		
"C"	0.7347	4	P <sub>c</sub> mm	4535.	5	40 Sugd.	1100.5	5
MR (Obs.)		2	PV/RT	1333.	+	Exp. L.1.%/wt.	1100.5	+-
MR (Calc. (nD-d/2)	1.0462 <sup>#</sup>	5 2	25°C	1.0000	5	u.	_	
Dielectric		5	30 mm BP	1.0000	5	Dispersion	97. <sup>‡</sup>	2
A 300 to		5	te	0.9579 0.9315	5	Flash Point C		
B 1515 °C		5	tc	1		Fire Point		+-
С	170.	5	ΔHc kcal/m ΔHf			M. Spec. Ultra V.		
A* 300 to		5	ΔFf		1	X-Ray Dif.		
B*  <u>510 °C</u>   K	2723.8	5	Viscosity			Infrared		
:	_{	1	centistokes			Solubility in *Acetone		
t <sub>k</sub> to			η °C			Carbon tet.	<b>60</b>	1
A'  25 to	7.9727	5				Benzene Ether	e0 e0	
B'   300 °C	3255.	5			+	n-Heptane	œ	
C'	200.	5	B <sup>V</sup> to C	1		Ethanol Water	<b>oc</b>	
A'* 25 to B'* 300 °C		5	(B <sup>V</sup> )  to	•		Water in		
Acl to	+	Ť	(A <sup>V</sup> )  °C					
Bc tc °C		l			+			ļ
			P				į	
Cryos. Acconsts. B		<u> </u>	c <sub>p</sub> vap. *K					
te °C  ≠ for und	502. ercooled liqui	5 d	c <sub>v</sub> vap.	1	1	grams/100 gra	ms solve	nt
	CES: 1-Dow		PI 3-Lit. 4-	Calc. from d	et. da			
SOURCE:		AI						
PURIFICA	TION:	AI	PI					
LITERATU	JRE REFERE	NCE	S:					

No. 44 STRUCTURAL FORMULA NAME n-Tetracosylcyclopentane CHC24H49 H2C CH2 H2C-CH2 1-Cyclopentyltetracosane Molecular Molecular Mole Ref. C29H58 Weight 406.754 Formula % Pur Ref. Ref F.P. \*C F.P. 100% 51. 2 dt/dP f to °C/mm g ĽK 2.3x10<sup>8</sup> 1 25°C 5 B, P. \*C h BP 0.07485 5 760 mm 451. 2 0.0341 5 f' t<sub>e</sub> to 100 354. 5 g' \_°K 30 310. 5 5 30 mm 1.1075 5 10 277. h' ∆Hm cal/g 219. 5 to m ∆Hv cal/g Pressure °K n 25°C 77.64 mm 25°C 0.0624 o 30 mm 5 50.10 t<sub>e</sub> 2032. 5 BP 42.53 5 m' to Density 5 te (d, e) 38.93 n' •ĸ g/ml 20°C 0.8312 5 39.21 0.8278 ٥' 2 25  $d_4^t$ AHV/T 5 20, 15 30 0.8244 4 Surface tension 1 310 d 66.81 5 0.8448 29.40 dynes/cm. 20°C a b e <u>| 510</u> •c 0.0534 5 -0.0368 4 aı-30 28.45 5 25 to 80.05 5 1 e' 40 27.52 •c 0.0965 Ref. Index 310 5 1.4619 20°C [P] n<sub>D</sub> 2 Parachor d<sub>c</sub> g/ml 1.4599 25 v ml/g 20°C 30 1.4578 4 30 567.1 5 40 "C" 0.7273 4 5 5 P<sub>c</sub> mm 4194. Sugd. 1139.5 MR (Obs.) 134.50<sup>#</sup> 2 PV/RT Exp. L. 1. %/wt. MR (Calc.) 133.922 25°C 1.0000 5 (nD-d/2) 1.0463 u. 2 97.<sup>‡</sup> 30 mm 1.0000 2 5 Dispersion Dielectric 2.137 5 RP 0.9570 5 Flash Point °C A 310 to B 520 °C t<sub>e</sub> 0.9291 7.43095 2711.9 Fire Point t<sub>c</sub>. M Spec. 145. C AHc kcal/m Ultra V. ΔHf A\* | 310 to 2, 16291 5 X-Ray Dif. ΔFf B+ 515 °C 2567.8 Infrared Viscosity Solubility in centistokes Acetone to Carbon tet. œ •c Benzene 00 A' | 25 to 7,8060 Ether œ B' 1310 °C 3064. n-Heptane  $\mathbf{B}^{\overline{\mathbf{v}}}$ 5 174. Ethanol ÃV I •c Water A'+ A'\* 25 to B'\* 310 °C 2.6513 5 Water in 2966. (BV) to Ac to (A<sup>V</sup>) °C Bc •c cp liq. •ĸ Сc Cryos. Aº ۰ĸ c<sub>p</sub> vap. consts. B° c, vap. te °C 513. # for undercooled liquid grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

NAME			<del>-</del>		cyclopentane		_	STRUCTURAL	FORMUL	A
		1-C			pentacosane		_	H₂Ç Ç		
Mole % Pur.		Ref.	Mo: Fo:	lecula mula		Molecular Weight 420.7	80	H2ĊĊ	Hg	
				Ref.			Ref.			Re
F. P. °C		54.		2	dt/dP		1	f to		
F.P. 100	<b>%</b>				°C/mm	8		g   '°K_		1
B. P. *C	ł				25°C BP	4.3x10 <sup>8</sup> 0,07539	5	h l		
760 mm		60.		2	t <sub>e</sub>	0.07339	5	f' to		T
100 30		63. 18.		5	30 mm	1,1196	5	g' <u>*K</u>		
10		84.		5		1,1170	+	h'		1
1	2	25.		5	AHm cal/g	<u> </u>		m to		+
Pressure					ΔHv cal/g	<b>1 2</b> 4 3	1.1	n l °K		1
mm 25°0		0.07	13	5	25°C 30 mm	76.41 49.18	5	• !		1
t <sub>e</sub>	20	58.		5	BP	41.83	5	m' to		+
Density	_ [ _		#	_ ]	t <sub>e</sub>	38.26	5	m' to		1
g/ml 20° _t 25	C	0.83 0.82	19' <sub>4</sub>	2	t <sub>e</sub> (d, e)	38.56	5	"		
dt 25		0.82	53	2	ΔHv/T <sub>e</sub>	20.22	5			+
a	$\dashv$	0.84		4	d 320 to	65.67	5	Surface tension dynes/cm. 20°C	29.47	9
<b>a</b> b		-0.03		4	_e520 <u>•C</u>	0.0518	5	S 30	28.55	1 5
Ref. Inde	x			$\vdash$	d'   25 to e'   320 °C	78.73 0.0929	5	40	27.64	5
n <sub>D</sub> 20		1.46	24#	2		0.0727	+	Parachor [P]		
25		1.46	04'	2	d g/ml			20°C		
30		1.43		4	vc ml/g tc °C	574.	5	30 40		
"C"		0.73		4	P <sub>c</sub> mm	4047.	5		1178.5	
MR (Obs.		39.14		2	PV/RT	<del>                                     </del>	+ -	Exp. L. 1. %/wt.		1
MR (Calc (nD-d/2)	. 7 1	38.54 1.04	64	5 2	25°C	1.0000	5	u.	4	
Dielectri	_	2,13			30 mm	1.0000	5	Dispersion	98. ≠	1
				5	BP te	0.9570 0.9289	5	Flash Point C		
A 320 t B <u>1540 •</u>		7.46 74.4	658	5	tc	0.7207		Fire Point		_
c '=	- 1	45.		5	ΔHc kcal/m	<u> </u>	+	M. Spec.		
A# 320 t		2.20	707	5	ΔHf			Ultra V. X-Ray Dif.		1
B* 530_°		27.7		5	ΔFf	<del> </del>	<b>↓</b>	Infrared		
K	_			1	Viscosity		1 1	Solubility in +		1
ւ <sub>k</sub> ┌ ─ լ	-			1 1	centistokes り °C			Acetone	œ	1
	c			1	'	İ	,	Carbon tet.	<b>60</b>	
A'   25 t	•	7.84	39	5				Benzene Ether	00 00	
B' 1320 .		35.	,	5	<del> </del>	<del>                                     </del>	+	n-Heptane	•	
<u>c'                                    </u>	1	74.		5	B <sup>v</sup> to A <sup>v</sup> C	1		Ethanol	<b>00</b>	
A'* 25 t		2.69	92	5		-		Water Water in		
B'*320 *	-	35.		5	(B <sup>V</sup> )  to					+
	<u> </u>				(A <sup>V</sup> )  °C	<b></b>	$\downarrow$			
Bc_tc_°	<u>~</u>				c <sub>p</sub> liq. *K	1				
Cryos. A	•			+-						
consts. I	•			<u> </u>	Р.					
t <sub>e</sub> °C ≠ for un		23.	ignic	5	c <sub>v</sub> vap.	<u> </u>	1	grams/100 gra	ms solve	nt.
					PI 3-Lit. 4-	Calc. from d	et. da	ta 5-Calc. by for		
SOURCE:				AP						
PURIFICA		N:		AP						
LITERAT			ERE							
LA I DIA I	OKL	KEF	BRE	NOE	••					

NAME	n-Hexa	osylo	yclopentane			STRUCTURAL I	ORMULA	
	1-Cyclo	penty	lhexacosane			H <sub>2</sub> Ç Ç	C26 H53	
<u> </u>	<del></del>					H <sub>2</sub> Ç Ç H <sub>2</sub> C — C	H <sub>2</sub>	
Mole % Pur.	Ref. Mo	lecul		Molecular Weight 434.8	06	H20-0	onz	
76 Pur.	1 1 70	Ref	a 31 02	weight 434.0	Ref.	<del></del>	in	lef.
	T 54	1			Ker.			
F.P. °C F.P. 100%	56.	2	dt/dP *C/mm		1 1	<b>f</b> to <b>g</b> 2′K		
B. P. °C	+	1-	25°C	7.03×10 <sup>8</sup>	5	g   K		
760 mm	468.	2	BP.	0.07610 0.03384	5			
100 30	370. 325.	5	t <sub>e</sub>		5	f' to to		
10	290.	5	30 mm	1,1321	3	h'		
1	231.	5	ΔHm cal/g			m l to	<del>-</del>	
Pressure mm 25°C	0.077	-	∆Hv cal/g 25°C	74.89	5	n '•K_		
mm 25°C	0.0 <sub>8</sub> 77 2089.	5	30 mm	48.11	5	¦° ¦		
Density	+	1	BP	41.07 37.52	5	m'   to		
g/ml 20°C	0.8326 0.8293	2	te (d, e)	37.89	5	n'   •K		
dt 25	0.8293	2 4	AHv/Te	20.24	5	0 1		
1 30	0.8458	4	d   325 to	64.08	5	Surface tension	29.54	5
ь Б	-0.0366	4	e_  530_ °C d'   25 to	0.0492	5	dynes/cm. 20°C		5
Ref. Index			d'   25 to e'   325 °C	77.13 0.0893	5	40	27.71	5
n <sub>D 20°C</sub>	1.4628 <sup>‡</sup> 1.4608 <sup>‡</sup>	2 2				Parachor [P]		
30	1.4588	4	v <sub>c</sub> ml/g t <sub>c</sub> °C			20°C 30		
"C"	0.7348	4	£ 30	578.	5	40		_
MR (Qbs.)	<del></del>	. 2	P <sub>c</sub> mm	3797.	5	Sugd.	1217.5	5
MR 1Calc.	1 143 158	5	PV/RT 25°C	1.0000	5	Exp. L.1.%/wt.		
(nD-d/2)	1.0465	2	30 mm	1,0000	5	Dispersion	98.≠	2
Dielectric	+	5	BP t <sub>e</sub>	0.9594	5	Flash Point °C		
A 325 to B 540 °C		5	tc	0.7515		Fire Point		
c -2	145.	5	∆Hc kcal/m			M Spec. Ultra V.		
A* 325 to		5	ΔHf ΔFf			X-Ray Dif.		
B* 1540 °C	2670.4	5	Viscosity		-	Infrared		
c	_i		centistokes	Ì		Solubility in +		
t t			<b>7 °</b> ℃			Acetone Carbon tet.	<b>80</b>	
t <sub>x</sub>   '(		5				Benzene	<b>60</b>	
B' 1325 °C		5				Ether n-Heptane	<b>80</b>	
C'	175.	5	B <sup>V</sup>   to A <sup>V</sup>   *C			Ethanol	<b>80</b>	
A'* 25 to		5	<u> </u>	1		Water Water in		
B'* 325 °C		5	(B <sup>V</sup> ) to					
Ac to			(A <sup>V</sup> )  °C	-	<b></b> -			
<u> </u>		1	c <sub>p</sub> liq. °K	ł				
Cryos. Acconsts. B			c <sub>p</sub> vap. ⁰K					
t <sub>e</sub> °C	533.	5	c <sub>v</sub> vap.					
	ercooled liqui					fgrams/100 gran	ns solvent	_
REFEREN	CES: 1-Dow	2 - AI	PI 3-Lit. 4-0	alc. from de	t. da	ta 5-Calc, by for		
SOURCE:		API						
PURIFICA	TION:	API						
LITERATU	RE REFERE	NCE	5:					
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								· · · · · · · · · · · · · · · · · · ·	No. 47	
NAME		n-H	e pta c	osyl	cyclopentane			STRUCTURAL		A
		1 -C	yclop	enty	lheptacosane			HzÇ Ç	27H55	
								H2Ç Ç	H2	İ
Mole % Pur.		Ref.		lecul		Molecular Weight 448.8	32	H2C-C	пр	
70 Fur.		<u></u>	FUI	mula	72 04 1	Weight 440.0	Ref.	<del></del>		Ref.
				Ref.		<del></del>	Rei.			Kei.
F.P. °C F.P. 100°		59.		-	dt/dP *C/mm			f to		
B. P. *C				$\vdash$	25°C	1.3x10 <sup>9</sup>	5	h		
760 mm		76.		2	BP	0.07631 0.03367	5	f' to		$\vdash$
100 30		77. 32.		5	t <sub>e</sub> 30 mm		5	g'  °K		
10		97.		5		1.1406	13	h'	,	
1	2	37.		5	ΔHm cal/g ΔHv cal/g		<del> </del> -	m to		
Pressure	.		40	ا ۔ ا	25°C	73.92	5	n	ı	
mm 25°C		0.0 <sub>8</sub> 03.	***	5	30 mm	47.39	5	0		
Density	_			Н	BP t	40.39 36.81	5	m' to		
g/m1 20%	С	0.83	33₹	2	t <sub>e</sub> (d, e)	37.22	5	n'  K	ı	
dt 25		0.82	99°	2 4	AHv/Te	20.29	5			<del></del>
a 30		0.84		4	d 330 to	63.53	5	Surface tension	29.62	5
ь Б		-0.03		4	e 530 °C d' 25 to		5	dynes/cm. 20°C	28.66	5
Ref. Inde	×				d'   25 to   e' <sub> </sub> 330 °C	76.07 0.0864	5	40	27.73	5
n <sub>D</sub> 20°	c	1.46	337	2	d <sub>c</sub> g/ml	1	T	Parachor [P]		
30		1.45	92	2 4	v_mi/g	1		20°C 30		]
"C"	$\top$	0,73		4		578.	5	40		1_
MR (Obs.	) 1	48.42	_	2	P <sub>c</sub> mm	3434.	5		1256.5	5
MR (Calc		42 27	, ,	5	PV/RT 25°C	1,0000	5	Exp. L.1.%/wt.		
(nD-d/2)		1.04		2	30 mm	1.0000	5	Dispersion	98. <sup>‡</sup>	2
Dielectri		2.14	11	5	BP	0.9565 0.9283	5	Flash Point C		<b>†</b>
A 330 to B 1550 °C		7.53 87.8	3111	5	te tc	0.7203	1	Fire Point		
c 1330 -		45.		5	ΔHc kcal/m	1	†	M. Spec.		1
A# 330 to	0	2,28	3943	5	ΔHf ΔFf		İ	Ultra V. X-Ray Dif.		
B* 540 °	<u>C</u>   27	36.6		5		<del>                                     </del>	<del></del>	Infrared		
c	- 1				Viscosity centistokes			Solubility in +		
.K'	<u> </u>				η •c			Acetone Carbon tet.	ec ec	
x	c			<u> </u>			1	Benzene	œ	İ
A'   25 to B'   330 °	°   32	7. 91 63.	125	5		<u> </u>		Ether n-Heptane	ec ec	1
C' 23		75.		5	B <sup>V</sup> to *C			Ethanol		
A1# 25 t		2.78	876	5		_	1	Water Water in		
B'* 330 °	C 31	62.		5	(B <sup>V</sup> )  to			water in		+
Ac t	e				(A <sup>V</sup> )  °C	<b></b>	-	4		
Cc C	<u> </u>				c <sub>p</sub> liq. *K					
Cryos. A	•			T	c <sub>p</sub> vap. *K					
consts. E	3.			ļ	-		İ		ļ	1
t <sub>e</sub> °C		541.		5	c <sub>v</sub> vap.			<u> </u>	L	1_
# for und							<del></del>	grams/100 gra		nt
	•	: 1-I	Jow			Caic. from d	et. da	ata 5-Calc. by for	muia	
SOURCE:				AI						
PURIFICA				AI						
LITERAT	UKE	KEF	ERE	NCE	5:					
1										
1										

No. 48 STRUCTURAL FORMULA NAME n-Octacosylcyclopentane GHC28 H57 H2C CH2 H2C-CH2 1-Cyclopentyloctacosane Molecular C33H66 Mole Molecular Weight 462.858 % Pur Ref. Ref. Ref F.P. \*C F.P. 100% 61. 2 dt/dP f to \*C/mm 25\*C g •K 2.2×10<sup>9</sup> 5 B. P. \*C h BP 0.07669 5 760 mm 483. 2 0.03354 5 ſ١ to 100 384. 5 g' ۰ĸ 30 1.1497 5 338. 5 30 mm 10 301. 5 h' ΔHm cal/g 1 243. m ΔHv cal/g Pressure •K 25°C n 72.66 5 0.0824 mm 25°C o 30 mm 46.52 5 t<sub>e</sub> 2123. 5 ΒP 39.70 5 m' to Density te te (d, e) 5 36, 15 •ĸ n' g/ml 20°C 0.8339<sup>‡</sup> 0.8306<sup>‡</sup> 2 36.59 5 ۰, 25 ď4 AHV/T 20,35 5 30 0.8273 4 Surface tension 340 62.42 d 5 0.8471 -0.0<sub>3</sub>66 29.68 dynes/cm. 20°C ь 0.0470 <u> 1 540</u> •c 30 28.75 5 25 to 74,75 25 340 e¹ 40 27.84 5 Ref. Index ·c 0.0835 5 20°C 1.4637 <sup>#</sup> 1.4617 <sup>#</sup> [P] 2  $\mathbf{n}_{\mathbf{D}}$ Parachor d g/ml vc ml/g tc °C 25 2 20°C 30 1.4597 4 30 583. 5 40 "C" 0.7350 4 333**3**. 5 Sugd. 1295.5 mm 5 MR (Obs.) 153.06<sup>#</sup> 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 152.394 25°C 1,0000 <u>1.0</u>467<sup>≠</sup> (nD-d/2) 98. <sup>‡</sup> 30 mm 1,0000 5 Dispersion 2 Dielectric 2.142 5 BP 0.9566 Flash Point °C 340 to 1560 °C t<sub>e</sub> 0.9280 7.56023 Fire Point 2938.7 M Spec. Ultra V. C 145. AHc kcal/m ΔHf A\* 340 to 2.32753 X-Ray Dif. ΔFf B\* 550 °C 2785.6 Infrared Viscosity Viscozz, centistokes °C Solubility in Acetone Carbon tet. •c Benzene œ A' 25 to 7,9435 Ether B' 1340 °C 3321. n-Heptane 00 B<sup>V</sup> | 175. 5 to Ethanol 8 •c Water A1# 25 to 2.8282 Water in B' # 340 °C (BV) 3218. to (AV) Ac | °C Bc •c cp liq. ۰ĸ Сc Cryos. A. ٠ĸ c<sub>p</sub> vap. consts. B° ŧ° .c c, vap. 549. 5 # for undercooled liquid grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

								No. 49	<u>'</u>
NAME	n-N	lona c	osylo	yclopentane			STRUCTURAL		A
	1-0	yclop	enty	lnonacosane			нас сн	See H59	
							HaCC	ng u	ļ
Mole % Pur.	Ref	. Mo	ecul		Molecular Weight 476.8	.	ngo—c	rig.	- 1
<del></del>		1 101			Weight 110.00	Ref.	r		Ref.
	1 /2		Ref.		<del> </del>	Rei.			Ker.
F.P. *C F.P. 100*	63.		2	dt/dP °C/mm			f to		1
	<del>*</del>			25 <b>°C</b>	3.9x10 <sup>9</sup>	5	g <u>*K</u>		
B.P. °C 760 mm	491.		2	BP	0.07712	5	h		$\vdash$
100	391.		5	t <sub>e</sub>	0.03340	5	f' to		
30	345.		5	30 mm	1.1599	5	g' <u>*K</u>		
10	309. 249.		5	∆Hm cal/g			h'		$\sqcup$
	247.		-	ΔHv cal/g			m to		1
Pressure mm 25°C	ه م	13	5	25°C	71.61	5	n   <u>*K</u>		1 1
t <sub>e</sub>	0.0 2146.	813	5	30 mm BP	45.77	5			$\perp$
Density	<del>                                     </del>			t <sub>e</sub>	39.10 35.55	5	m' to		1
g/ml 20°	C 0.8	345	2	te (d, e)	36.03	5	n'  *K_		
dt 25	0.8	312 <sup>#</sup>	2 4	ΔHv/T	20.39	5			1
			-	d 345 to	61.55	5	Surface tension		
b	-0.0		4 4	_e _l _550 °C	0.0457	5	dynes/cm. 20°C	29.74	5
Ref. Inde:		,,,,	$\vdash$	d' 25 to	73.63	5	30 40	28.81 27.90	5
n <sub>D</sub> 20°	اما	640 <sup>‡</sup>	2	e'   345 °C	0.0874	5	Parachor [P]		$\vdash$
25	1.4	620°	2	d <sub>c</sub> g/ml			20°C		1 1
30	1.4	600	4	tc *C	586.	5	30		
"C"	0.7	349	4	P <sub>c</sub> mm	3123.	5	40 Sugd	1334.5	5
MR (Obs.		1#	2	PV/RT	3123.	<del>  _</del>			+
MR (Calc	157.0	12 #	5	25°C	1,0000	5	Exp. L.1.%/wt.		
(nD-d/2)		468 <sup>‡</sup>	2	30 mm	1.0000	5	Dispersion	98.≠	2
Dielectric		43	5	BP	0.9562	5	Flash Point C		$\vdash$
A 345 to		9341	5	t t c	0.9276	5	Fire Point	ı	
B (575 °C	2997.2 145.		5 5	ΔHc kcal/m	<del> </del>	╁	M. Spec.		
A* 345 to		6899	5	ΔHf			Ultra V.	1	
B*  570 °C			5	ΔFf			X-Ray Dif. Infrared		
к	-			Viscosity			Solubility in +		┼─
t, to	-			centistokes		1	Acetone	<b>60</b>	}
t <sub>k</sub>   - t				η •c			Carbon tet.	••	
A'   25 to	7.9	787	5			i	Benzene Ether	<b>80</b>	Ì
B' 345 °			5	<del></del>	ļ	—	n-Heptane	<b>60</b>	}
C'	176.		5	B <sup>V</sup> to A <sup>V</sup> C			Ethanol	••	1
A'* 25 to		723	5			1	Water Water in		
B'*345 *(	3283.		5	(B <sup>V</sup> )  to		1	WERGT III		+-
Acl to	2			(A <sup>V</sup> )  °C		ـــــ			
Bc tc	<u>-</u>			c <sub>p</sub> liq. *K		1			
			$\vdash$	l -		1			1
Cryos. A consts. B				c <sub>p</sub> vap. *K		1			
t <sub>e</sub> °C	558.		5	c <sub>v</sub> vap.	<u> </u>	<u>L</u>	I.,		
# for und							grams/100 gra		at
	CES: 1-	Dow			Calc. from de	et. di	ata 5-Calc, by for	mula	
SOURCE:			API						
PURIFICA	TION:		API						
LITERAT	URE REF	ERE	NCE	S:					
1									

STRUCTURAL FORMULA NAME n-Triacontylcyclopentane CHC30H61 H2C CH2 H2C-CH2 1-Cyclopentyltriacontane Molecular C35H70 Mole Ref. Molecular Weight 490.910 Formula % Pur. Ref Ref. Ref F. P. °C 65. 2 dt/dP f to F.P. 100% °C/mm <u>•</u>K g 6.6×10<sup>9</sup> 25°C 5 B. P. °C h BP 0.07748 5 760 mm 498. 2 5 0.03326 ſ١ to 100 397. 5 g' 5 •K 30 30 mm 351. 1.1686 5 10 315. 5 h' ∆Hm cal/g 1 254. to m ΔHv cal/g Pressure ۰ĸ n 25°C 70.51 mm 25°C 0.0978 o 30 mm 45.01 5 2166. 5 t<sub>e</sub> RP 5 38,48 m to Density g/ml 20°C te (d, e) 34.94 5 •ĸ 0.8350 0.8317 2 5 35.45 ٥'  $\mathbf{d_{4}^{t}}$ 25 AHV/Te 20.43 5 30 0.8284 4 Surface tension 1 350 60.61 5 d to 0.8482 -0.0<sub>3</sub>66 29.79 dynes/cm.. 20°C 1 565 1 25 •c 0.0444 ь 4 28.86 27.95 ď٠ 30 5 72.46 to 350 40 Ref. Index e' 0.0782 5 20°C 1.4644  $\mathbf{n}_{\mathbf{D}}$ [P] Parachor 1.4624 d<sub>c</sub> g/ml 25 2 20°C ml/g vc tc 30 1.4604 4 30 •c 589. 5 40 "C" 0.7350 4 P<sub>c</sub> mm 2929. 5 Sugd 1373.5 5 162.35# MR (Obs.) 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 161,630 1.0469 25°C 1.0000 (nD-d/2) 98. <sup>‡</sup> 30 mm 1.0000 2 Dispersion Dielectric 2.144 5 BP 0.9561 5 Flash Point °C t<sub>e</sub> A 350 to 0.9273 7.62314 Fire Point B 1580 °C 3049.3 M Spec. C AHc kcal/m 145. Ultra V ΔHf 2.40704 A\* 350 to 5 X-Ray Dif. ΔFſ B\* 575 °C 2892.1 Infrared Viscosity Solubility in centistokes Acetone to Carbon tet. œ •c Benzene œ .A' | 25 to 8.0103 Ether ∞ B' 1350 °C 3446. n-Heptane œ B<sup>V</sup> | C' 176 to Ethanol •c Water A'\* 25 to 2.9130 (BV) Water in B'\* 350 °C 3341. to Ac | to  $(A^{V})_{1}$ °C Bc •c cp liq. ۰ĸ Cryos. A. c<sub>p</sub> vap. ۰ĸ consts. B° te C c, vap. 566. # for undercooled liquid grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula API SOURCE: PURIFICATION: API LITERATURE REFERENCES:

Density g/ml 20°C dt 25° 4 30  a b  Ref. Index nD 20°C 25° 30  "C"  MR (Obs.) MR (Calc.) (nD-d/2)  Dielectric A 355 to	Ref. Mo	Ref. 2 2 5 5 5 5		Molecular Veight 504.93 1.1×10 <sup>10</sup> 0.0778 0.0331 1.1770	Ref.	f g h	to   to   to   H2C CH		Ref.
% Pur.  F. P. °C F. P. 100%  B. P. °C 760 mm 100 30 11  Pressure mm 25°C te  Density g/ml 20°C dt 25 4 30 a b  Ref. Index nD 20°C 25 30 "C"  MR (Obs.) MR (Calc.) (nD-d/2) Dielectric A 355 to B 1580 °C	67.  505. 404. 357. 321. 259.  0.0945 2185.  0.8356 0.8322 0.8288 0.8492	2 2 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	dt/dP °C/mm 25°C BP te 30 mm  ΔHm cal/g  ΔHv cal/g 25°C	1.1x10 <sup>10</sup> 0.0778 0.0331	Ref. 5 5 5	g   h	H2 C — C		Ref.
F. P. 100%  B. P. °C 760 mm 100 30 10 1  Pressure mm 25°C te  Density g/ml 20°C dt 25 d4 30  a b  Ref. Index nD 20°C 25 30  "C"  MR (Obs.) MR (Calc.) (nD-d/2)  Dielectric A 355 to B 1580 °C	505. 404. 357. 321. 259. 0.0 <sub>9</sub> 45 2185. 0.8326. 0.8326. 0.8328. 0.8492	2 5 5 5 5 5 5 5	°C/mm 25°C BP t <sub>e</sub> 30 mm AHm cal/g AHv cal/g 25°C	0.0778 0.0331	5 5 5	g   h			Ref
F. P. 100%  B. P. °C 760 mm 100 30 10 1  Pressure mm 25°C te  Density g/ml 20°C dt 25 d4 30  a b  Ref. Index nD 20°C 25 30  "C"  MR (Obs.) MR (Calc.) (nD-d/2)  Dielectric A 355 to B 1580 °C	505. 404. 357. 321. 259. 0.0 <sub>9</sub> 45 2185. 0.8326. 0.8326. 0.8328. 0.8492	2 5 5 5 5 5 5	°C/mm 25°C BP t <sub>e</sub> 30 mm AHm cal/g AHv cal/g 25°C	0.0778 0.0331	5	g   h			
B. P. *C 760 mm 100 30 10 1 1 Pressure mm 25°C te  Density g/ml 20°C dt 25 4 30  a b  Ref. Index nD 20°C 25 30 "C"  MR (Obs.) MR (Calc.) (nD-d/2) Dielectric A 355 to B 1580 °C	404. 357. 321. 259. 0.0945 2185. 0.8356 <sup>‡</sup> 0.8322 <sup>‡</sup> 0.8288 0.8492	5 5 5 5	25°C BP te 30 mm  AHm cal/g  AHv cal/g 25°C	0.0778 0.0331	5	h	'•K		1
760 mm 100 30 10 1 Pressure mm 25°C te  Density g/ml 20°C dt 25 4 30  a b  Ref. Index nD 20°C 25 30 "C"  MR (Obs.) MR (Calc.) (nD-d/2) Dielectric A 355 to B 580 °C	404. 357. 321. 259. 0.0945 2185. 0.8356 <sup>‡</sup> 0.8322 <sup>‡</sup> 0.8288 0.8492	5 5 5 5	BP t <sub>e</sub> 30 mm ΔHm cal/g ΔHv cal/g 25°C	0.0778 0.0331	5	<del>-</del>	·		
100 30 10 10 1 Pressure mm 25°C te Density g/ml 20°C dt 25 4 30 a b Ref. Index nD 20°C 25 30 "C"  MR (Obs.) MR (Calc.) (nD-d/2) Dielectric A 355 to B 580 °C	404. 357. 321. 259. 0.0945 2185. 0.8356 <sup>‡</sup> 0.8322 <sup>‡</sup> 0.8288 0.8492	5 5 5 5	30 mm  AHm cal/g  AHv cal/g  25°C		1 1	- I			↓
10 1 Pressure mm 25°C te 25°C dt 25°C dt 30°C dt 25°C dt 30°C dt 25°C dt 30°C dt 25°C dt 30°C dt 25°C dt 30°C	321. 259. 0.0 <sub>9</sub> 45 2185. 0.8356 0.8322 0.8288 0.8492	5 5 5	ΔHm cal/g ΔHv cal/g 25°C	1,1770	1 e 11	f'	to		1
1 Pressure mm 25°C te 20°C dt 25°C dt 25°C dt 30°C dt 25°C 25°C 25°C 25°C 25°C 25°C Dielectric A 355 to B 580 °C	0.0 <sub>9</sub> 45 2185. 0.8356 0.8322 0.8288 0.8492	5 5 5	ΔHv cal/g 25°C		2	g'	<u>K</u>		1
mm 25°C te 25 d4 20°C dt 25 d4 30 a b Ref. Index nD 20°C 25 30 "C" MR (Obs.) MR (Calc.) (nD-d/2) Dielectric A 355 to B 1580 °C	0.8356 0.8322 0.8288 0.8492	5	25°C			h'	to		┼
te / A   A   A   A   A   A   A   A   A   A	0.8356 0.8322 0.8288 0.8492	5		40.50	5	n	•K		
Density g/ml 20°C dt 25' 4 30  a b  Ref. Index nD 20°C 25' 30  "C"  MR (Obs.) MR (Calc.) (nD-d/2) Dielectric A 355 to B 580 °C	0,8356 0,8322 0,8288 0,8492			69.50 44.31	5	0			
g/ml 20°C dt 25 4 30 a b Ref. Index nD 20°C 25 30 "C" MR (Obs.) MR (Calc.) (nD-d/2) Dielectric A 355 to B 580 °C	0.8322 0.8288 0.8492	2	BP	37.90	5	m'	to		T
dt 25 d4 30  a b  Ref. Index nD 20°C 25 30  "C"  MR (Obs.) MR (Calc.) (nD-d/2)  Dielectric A 355 to B 1580 °C	0.8322 0.8288 0.8492		te te (d, e)	34.32 34.90	5	n',	_ •ĸ_		1
a b  Ref. Index nD 20°C 25 30 "C"  MR (Obs.) MR (Calc.) (nD-d/2) Dielectric A 355 to B 580 °C	0.8288	2	AHV/Te	20,45	5				<u> </u>
b  Ref. Index nD 20°C 25 30  "C"  MR (Obs.) MR (Calc.) (nD-d/2)  Dielectric A 355 to B 580 °C		14	d 355 to	59.81	5		tension		_
n <sub>D</sub> 20°C 25 30 "C" MR (Obs.) MR (Calc.) (nD-d/2) Dielectric A 355 to B 580 °C	,	4 4	_e _l _565 °C	0.0434	5	dynes/	cm. 20°C 30	29.85 28.89	5
n <sub>D</sub> 20°C 25 30 "C" MR (Obs.) MR (Calc.) (nD-d/2) Dielectric A 355 to B 580 °C		$\dagger$	d'   25 to e'   355 °C	71.39 0.0758	5 5		40	27.96	5
30 "C"  MR (Obs.)  MR (Calc.) (nD-d/2)  Dielectric  A   355 to B   580 °C	1.4648	2		0.0130	1	Parach			
MR (Obs.) MR (Calc.) (nD-d/2) Dielectric A 355 to B 580 °C	1.4628 <sup>#</sup>	2 4	dcg/ml vcml/g tc°C				20°C		į
MR (Calc.) (nD-d/2) Dielectric A 355 to B 580 °C	0.7351	4		588.	5		40		
MR (Calc.) (nD-d/2) Dielectric A 355 to B 580 °C	166.99≠	2	P <sub>c</sub> mm	2637.	5			1412.5	5
Dielectric  A 355 to B 580 °C	166 248	اما	PV/RT 25°C	1.0000	5	Exp. L	. 1. <b>%/wt</b> . u.		1
A 355 to B 580 °C	1.0470	_	30 mm	1.0000	5	Disper		98.≠	2
B   580 °C	2, 146	5	BP	0.0956 0.0927	5 5		Point °C		$\top$
c -202 -3-1	7.65505 3103.3	5 5	te tc	0.0,2,		Fire P			↓_
	145.	5	AHc kcal/m	<b> </b>		M. Spe Ultra V		1	
A* 355 to	2.44753	5	ΔHf ΔFf			X-Ray			-
B* 570 °C	2944.5	5	Viscosity	<b></b>	$\vdash$	Infrare			<b>_</b>
c			centistokes			Solubil Aceto			
t <sub>k</sub> to			ŋ °C			Carbo		ec ec	
A'   25 to	8,0443	5				Benze Ether		00	1
B' 355 °C	3507.	5	ļ- <del>,</del> ,		-	n-Her		<b>80</b>	ŀ
C'	177.	5	B <sup>V</sup> to C		'	Ethan Water		<b>o</b> o	Î
A'* 25 to B'* 355 °C	2.9556 3401.	5	$\frac{1}{(\mathbf{B}^{v})^{l}} - \frac{o}{to}$			Water			
Acl to	3101.	+-	(A <sup>V</sup> )  °C						
Bc t C		1		<del></del>	+				
Ce			P						
Cryos, A° consts, B°			c <sub>p</sub> vap. °K						
t <sub>e</sub> °C	574.	5	c <sub>v</sub> vap.			L		L	
for under							s/100 gra		nt
	ES: 1-Dow		PI 3-Lit. 4-	Calc. from de	et. da	ta 5-Ca	lc. by for	mula	
SOURCE:		AF							
PURIFICATION		AF							
LITERATUR	E REFERI	ENCES	5:						

STRUCTURAL FORMULA NAME n-Dotriacontylcyclopentane CHC 32 H65 H2C CH2 H2C-CH2 1-Cyclopentyldotriacontane Molecular C<sub>37</sub>H<sub>74</sub> Molecular Mole Ref. Weight 518,962 % Pur. Ref. Ref. 69 2 F, P. dt/dP f to F.P. 100% °C/mm g <u>°K</u> 1.8x10<sup>10</sup> 25°C 5 B. P. \*C h BP 0.0782 5 760 mm 512. 2 0.0329 5 ſ to 100 t. 410. 5 8 \_K 30 363. 5 30 mm 1.1861 5 10 327. 5 h' ΔHm cal/g 265. m to ΔHv cal/g Pressure •ĸ n 25°C 68.47 5 mm 25°C 0.0927 o 43.61 30 mm t<sub>e</sub> 2215. BP 37.46 5 1 Density g/ml 20°C te te (d, e) 33.93 5 n' ٠ĸ 0.8360 5 34.55 0.8327 01 25 2  $d_4^t$ AHv/T 20.58 5 30 0.8294 4 Surface tension 1 365 58.63 5 0.8492 -0.0366 4 . dynes/cm. 20°C 29.89 570 25 •c 0.0413 5 ь 30 28.96 5 365 to •C 70,30 40 28.05 e' Ref. Index 0.0735 5 20°C 1.4651 [P] 2 n<sub>D</sub> Parachor d<sub>c</sub> g/ml 1.4631 25 2 20°C vc ml/g tc °C 30 1.4611 4 30 5 594. 40 "C" 0.7352 4 5 P<sub>c</sub> mm 2584. 1451.5 5 Sugd. MR (Obs.) 171.63<sup>#</sup> 2 PV/RT Exp. L. l. %/wt. MR (Calc.) (nD-d/2) 170.866 5 1.0471 25°C 1.0000 5 u. 1.0000 98. <sup>‡</sup> 30 mm 2 Dispersion Dielectric 2.146 5 RP 0.9588 5 Flash Point °C t<sub>e</sub> 0.9306 5 1365 to 7,68178 5 Fire Point tç <u>1595</u> •<u>C</u> 3154.2 M Spec. C 145. AHc kcal/m Ultra V. ΔHf A\* 365 to B\* 590 °C 2.47545 5 X-Ray Dif. ΔFf 2990.1 İnfrared ĸ Viscosity Solubility in c centistokes Acetone to Carbon tet. 00 •c Benzene 25 to 8,0727 Ether \_365 °C 3564. n-Heptane œ в<sup>v</sup> C١ 177. 5 Ethanol ÃV I °C Water A1# 25 to 2.9924 5 Water in B'# 365 °C (BV) 3458. to Ac to (AV) •c Bc •c cp liq. ۰ĸ Cc Cryos. A\* c<sub>p</sub> vap. •ĸ consts. B° c, vap. te °C 582. # for undercooled liquid grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

	n-T	ritria	cont	ylcyclopentane		$\neg$	CERTICETURA!	NO. 5	
NAME						$\dashv$	STRUCTURAL		^
I	1-0	yelop	enty	ltritriacontane			H <sub>2</sub> Ç Ç	33H67 H2	
Mole % Pur.	Ref		ecul	C <sub>38</sub> H <sub>76</sub>	Molecular Veight 532.98	38	н₂ċ—ċ	Hg	
		1	Ref.		l e	Ref.			Ref.
F. P. *C	70.		2	dt/dP			f to		
F.P. 100				°C/mm	100		g  *K		
B. P. *C				25°C BP	3.98x10 <sup>10</sup> 0.0784	5	h		
760 mm 100	518. 416.		2	t <sub>e</sub>	0.0327	5	f' to		
30	369.		5	30 mm	1.1926	5	g' <u>*K</u>		
10	332. 269.		5	ΔHm cal/g			h'		
Pressure	+			ΔHv cal/g			m to		
mm 25°C	:   O. O	916	5	25°C 30 mm	67.49 42.94	5	<del>-</del> -		
t <sub>e</sub>	2230.		5	BP	36.90	5	m¹ to		+
Density g/ml 20°	ه ا م	365 <sup>‡</sup>	١, ١	t <sub>e</sub> (d, e)	33.37	5	n' K		
at 25	0.8	332	2 2	t <sub>e</sub> (d, e)	34.02 20.63	5	0'		
4 30	0.8	299	4		<del></del>	<b>—</b>	Surface tension		
a b		497	4	d 370 to	57.88 0.0450	5	dynes/cm. 20°C	29.94	5
Ref. Inde:	-0.0	300		d' 25 to	69.27	5	30 40	29.01 28.10	5
n <sub>D</sub> 20°	c 1.4	654 634	2	h	0.0714	3	Parachor [P]		
_ 25			2	d <sub>c</sub> g/ml v <sub>c</sub> ml/g	l		20°C		
30 "C"		614	4	t <sub>c</sub> ml/g	595.	5	30 40		
		351		P <sub>c</sub> mm	2595.	5	Sugd.	1490.5	5
MR (Obs. MR (Calc	1 175 4	0.4	2 5	PV/RT		_	Exp. L.1.%/wt.		
(nD-d/2)	1.0	471 <sup>#</sup>	2	25°C 30 mm	1.0000 1.0000	5	u. Dispersion	98.≠	2
Dielectric	2.1		5	BP	0.9582	5	Flash Point *C	,,,,,	+
A 370 to		1327	5	t <sub>e</sub>	0.9298	,	Fire Point		
B 1600 °C	2 3203.9 145.	•	5	AHc kcal/m	<u> </u>	-	M. Spec.		
A* 370 to	2.5	1605	5	ΔHſ			Ultra V. X-Ray Dif.		
B* 590 °C	<u>C</u> 3038.7	,	5	ΔFf	<del> </del>	-	Infrared		
c				Viscosity centistokes			Solubility in +		
t <sub>k</sub> -t				η ·c		1	Acetone Carbon tet.	<b>8</b> 0	
A'   25 to	-	061					Benzene	∞	1
B' 370	3620.	061	5		ļ		Ether n-Heptane	& &	1
C'	177.		5	B <sup>V</sup> to C		1	Ethanol	<b>60</b>	ł
A'* 25 to B'* 370 *		344	5	=v. <del></del>	-	l	Water Water in		
	+		5	11					1
Acl to					<del> </del>	-	1		
Cc —				c <sub>p</sub> liq. *K		1			
Cryos. A consts. B				c <sub>p</sub> vap. *K					
t <sub>e</sub> °C	589.		5	c <sub>v</sub> vap.		L		L	
	lercooled						grams/100 gra		nt
REFEREN	ICES: 1-	Dow			Calc. from de	t. de	ata 5-Calc. by for	mula	
SOURCE:			API						
PURIFICA			API						
LITERAT	URE REI	ERE	NC E	S:					
j									
1									

No. 54 STRUCTURAL FORMULA NAME n-Tetratriacontylcyclopentane CHC34H69 H2C CH2 H2C-CH2 1-Cyclopentyltetratriacontane Molecular C39H78 Molecular Mole Ref. Weight 547.014 % Pur Ref Ref. Ref. F.P. C F.P. 100% 72. 2 dt/dP f to \*C/mm g <u>°K</u> 4.95×10<sup>10</sup> 25°C 5 B. P. \*C h BP 0.0788 760 mm 5**25**. 2 0.0327 5 ſ 100 to 422. 5 g' °K 30 375. 5 30 mm 1.2016 5 10 338. 5 h! ∆Hm cal/g 5 274 to ΔHv cal/g m Pressure °K 66.56 5 n 25°C mm 25°C 0.01098 o 42.32 30 mm 5 2247. t<sub>e</sub> BP 36.33 5 m' 1 Density g/ml 20°C 32.74 5 te te (d, e) •ĸ n' 0.83707 33.46 5 0 0.8336 25  $d_4^t$ AHv/T 20, 59 5 30 0.8302 Surface tension 1 375 57.26 to 0.8506 -0.0<sub>3</sub>68 a b dynes/cm. 20°C 30.00 <u>l 58</u>0 •c 0.0399 5 e 4 30 29.04 28.10 ď 5 to 68.29 25 1 e' 40 Ref. Index 375 •c 0.0693 1.4657 20°C [P] 2 Parachor n<sub>D</sub> d g/ml vc ml/g tc °C 1.4637 25 20°C 30 1.4616 4 30 40 "C" 0.7351 4 P<sub>c</sub> mm Sugd. 1529.5 5 180.91<sup>₹</sup> MR (Obs.) 2 PV/RT Exp. L.1. %/wt. MR (Calc.) (nD-d/2) 180.102 1.0472 25°C 1,0000 5 u. 2 30 mm 1.0000 5 98. <sup>‡</sup> Dispersion 2 0.9569 Dielectric 2,148 5 BP 5 Flash Point °C t<sub>e</sub> 0.9281 A 375 to 7.73950 Fire Point tç 3255.3 <u> 600 °C</u> M Spec. c 145. 5 ∆Hc kcal/m Ultra V ΔHf A\* 375 to 2.55168 5 X-Ray Dif. ΔFf B\* 600 °C 3089.3 Infrared ĸ Viscosity Solubility in c centistokes Acetone to Carbon tet. œ •c Benzene A' | 250 to 8,1340 Ether œ \_3<u>75</u> °C 3678. n-Heptane œ  $\mathbf{B}^{\widehat{\mathbf{v}}}$ C' 178. 5 Ethanol ÃV I °C Water A'\* 25 to 3.0702 5 Water in B'\* 375 °C (BV) 3570. to Acl to (AV) °C Bc | **•**C cp liq. °K Cc Cryos. Aº ۰ĸ c<sub>p</sub> vap. consts. B° c, vap. t<sub>e</sub> °C 597. # for undercooled liquid grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API **PURIFICATION:** API LITERATURE REFERENCES:

NAME	n-Penta	triaco	ntylcyclopentan	e		STRUCTURAL		
	l -Cyclo	penty	pentatriacontan	e		н₂ç⊂сн	C35 H71	
Mole % Pur.	Ref. M	olecul		Molecular Weight 561.04	40	H2CC	H2	
		Ref		T	Ref.			Ref.
F. P. °C	74.	2	dt/dP			f to		
F.P. 1009	6		°C/mm	10		g  •K_		
B. P. *C			25°C BP	7.9×10 <sup>10</sup> 0.07904	5	h		1 1
760 mm	531. 428.	2 5	t <sub>e</sub>	0.03256	5	f' to		
30	380.	5	30 mm	1.2085	5	g'  ° <u>K</u>		
10	343.	5	AHm cal/g			h'		
<del></del>	279.	+-	ΔHv cal/g			m   to		
Pressure mm 25°C	0.01061	5	25°C	65.64	5	n   <u>•K</u>		
te	2263.	5	30 mm BP	41.71 35.83	5	l		$\vdash$
Density			l t.	32.28	5	m' to		
g/ml 20°0	0.8374° 0.8341°	2 2	t <sub>e</sub> (d, e)	33.00	5	",		
d <sub>4</sub> 25	0.8308	4	ΔHv/T <sub>e</sub>	20.66	5	Surface tension		+-
a	0.8506	4	d 380 to	56.51	5	dynes/cm. 20°C	30.04	5
ь	-0.0366	4	d 590 °C	0.03895 67.33	5 5	<b>8</b> 30	29.10	5
Ref. Index	- 1 4660	2	e'   380 °C	0.0674	5	40	28.19	5
<sup>n</sup> D 20°0	1.4640	2	d <sub>c</sub> g/ml			Parachor [P] 20°C		
30	1.4620	4	vc ml/g tc °C			30		
"C"	0.7352	4	P <sub>c</sub> mm		1	40 Sugd	1568.5	5
MR (Obs.		2	PV/RT		$\vdash$	Exp. L.1.%/wt.	1300.3	Ť
MR (Calc. (nD-d/2)	184.720 1.0473	5 2	25°C	1.0000	5	u.	1	
Dielectric		5	30 mm BP	1.0000 0.9566	5	Dispersion	98. <sup>‡</sup>	2
A 380 to		+	te	0.9277	5	Flash Point C		
B   600 °C		5	t c			Fire Point		┼
С	145.	5	ΔHc kcal/m			M. Spec. Ultra V.		
A+1 380 to		5	ΔHf ΔFf			X-Ray Dif.		
B*[ 600 °C	31 36. 4	"	Viscosity			Infrared	<del> </del>	┿
:	_	1	centistokes		1	Solubility in *Acetone	<b>o</b> o	}
t <sub>k</sub> to			η °C			Carbon tet.	••	l
A'   25 to		5	1		1	Benzene Ether	ec ec	ļ
B' 380 °C	3733.	5	- <del></del>	<del> </del>	╁	n-Heptane	• • • • • • • • • • • • • • • • • • •	
C'	178.	5	B <sup>V</sup> to C		1	Ethanol Water	••	
A'* 25 to B'* 380 °C		5	$(B^{\nu})$ $=$ $\frac{1}{t_0}$	-	1	Water in		1
Acl to	+	+-	(A <sup>V</sup> )  °C					
Bc tc *C				<u> </u>	+-			
Ce		↓	P		1			
Cryos. A' consts. B'		_	c <sub>p</sub> vap. *K					
t <sub>e</sub> °C	604.	5	c <sub>v</sub> vap.	l		+ ==== (100		<u></u>
	CES: 1-Dow		PI 3-Lit. 4-	Calc from de	• 4	grams/100 gra		nt
SOURCE:	020. I-DOW	AI		Care, from de	ue	3-0aic, by 101		
PURIFICA	TION	Al						
	JRE REFER						· · · · · · · · · · · · · · · · · · ·	
	NE REFER	SIVCE	<b>5.</b>					
1								

No. 56 STRUCTURAL FORMULA NAME n-Hexatriacontylcyclopentane CHC 36 H 73 H2C CH2 H2C-CH2 1-Cyclopentylhexatriacontane Molecular C41H82 Molecular Mole Ref. Weight 575.066 % Pur Ref. Ref Ref. F.P. \*C F.P. 100% 75. 2 dt/dP f to °C/mm g •ĸ  $1.3 \times 10^{11}$ 25°C 5 B. P. \*C h ВP 0.0793 760 mm 537. 5 5 0.0324 f to 100 433. g' •K 30 385. 5 30 mm 1.2155 5 10 348. 5 h' ∆Hm cal/g 284. 5 to m ΔHv cal/g Pressure n •K 25°C 64.76 mm 25°C 0.01038 o 30 mm 41.12 5 2283. te BP 35.38 5 Density g/ml 20°C to m' 5 te te (d, e) 31.83 •K n' 0.8378 32.60 5 0.8345 ۰, 25 30  $d_4^t$ AHV/Te 20,72 5 0.8312 4 Surface tension 55.71 385 to 0.8510 -0.0366 4 dynes/cm. 20°C 30.08 <u>.с</u> 0.0379 5 • 600 ь 4 30 29.14 28.23 5 to C 66.40 25 40 e¹ Ref. Index 385 0.0656 1.4662 20°C 2 Parachor [P]  $\mathbf{n}_{\mathbf{D}}$ d g/ml vc ml/g tc °C 1.4642 25 2 20°C 30 1.4621 4 30 40 "C" 0.7350 4 P<sub>c</sub> mm Sugd. 1607.5 5 MR (Obs.) 190.19≠ 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 189.748 1.0000 25°C 1.0473 5 (nD-d/2)30 mm 98. <sup>‡</sup> 1.0000 5 Dispersion 2 Dielectric 0.9574 2,150 5 BP 5 Flash Point °C 0.9286 5 385 to 7.79534 Fire Point tc B (6) 0 .C 3351.7 M Spec. Ultra V c 145. AHc kcal/m ΔHf A\* 385 to 2.62093 X-Ray Dif. AFf B+ 610 °C 3181.7 Infrared ĸ Viscosity Solubility in c centistokes Acetone t<sub>x</sub> to Carbon tet. œ •c Benzene œ A' | 25 to 8,1934 Ether œ B! L385 °C 3787. 5 n-Heptane 00  $\mathbf{B}^{\overline{\mathbf{v}}}$ C 179. 5 to Ethanol 00 ÃV i •c Water A'\* 25 to B'\* 385 °C 3.1453 5 Water in (BV) 3678. to (A<sup>V</sup>) i Ac l to °C Bc •c cp liq. ۰ĸ Сc Cryos. A. cp vap. ۰ĸ consts. B° c<sub>v</sub> vap. te °C 610. 5 # for undercooled liquid grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula API SOURCE: PURIFICATION: API LITERATURE REFERENCES:

NAME	Сус	lopent	ene				ST	RUCTURAL		A
								H <sub>2</sub> C CH	СН	
Mole % Pur,	Re		lecul: muls	C5H8	Molecular Weight 68, 11	4		-	CH <sub>2</sub>	ļ
		1.0.	Ref	<u></u>	1	Ref.	r			Ref.
F. P. *C	-135.	076	2	dt/dP			ſ	1		
F.P. 100		0.0	1	*C/mm		1	g	to K		l i
B. P. *C	1		$\vdash$	25°C	0.06801	5	h			
760 mm	44.	242	2	BP	0.03928	2 5		<del></del> -		Н
100	-5.		4	t <sub>e</sub>	0.03582	1 1	f' g'	to *K		
30 10	-27. -43.		5 5	30 mm	0,5481	5_	-	<u>w</u>		
1	-71.		5	∆Hm cal/g	11.80	3	h'			$\vdash$
Pressure	<u> </u>			ΔHv cal/g	ł		m	300 to	-0.08343 0.00126	
mm 25°C	380.	22	5	25°C	97.98	5	Ö	<u></u>	-0.06338	
t <sub>e</sub>	855.	03	5	30 mm BP	107.24 94.25	5	<u> </u>	<u> </u>		
Density				l t_	93.60	5	m' n'	700 to	-0.03077 0.00122	
g/ml 20°		77199	2	l .e (a, e)	93.60	5	, ''	[ 1000 •K	-0.06433	
dt 25 4 30		76653 76104	2 4	ΔHv/T <sub>e</sub>	19.86	5			4,46.55	1
			-	d -30 to	102.30	5		face tension		
a b	_0.	79404 00104	4			5	dyn	es/cm. 20°C	22.65	3
		00104	<del>  </del>	d' to			•	30 40	21.32	3
Ref. Inde	- 1	42246	2	e' •C	<b>.</b>	<u> </u>	Do.	achor [P]	<b></b>	$\vdash$
"D 25		41940	2	d <sub>c</sub> g/ml	0.277	5	F.		192.81	4
30		41612	4	vc ml/g tc °C	3.613	5		30	[ /	1
"C"	0.	7275	4		ı	5	į	40 Sund		_
MR (Obs.	) 22.	443	2	P <sub>c</sub> mm	34112.	•	<u> </u>		192.5	5
MR (Calc	.) 22.		5	PV/RT 25°C	0,9767	4	Exp	b. L.1.%/wt.	1	
(nD-d/2)	1.	03646	2	30 mm	1,0000	5	Dia	u. persion	118.7	2
Dielectrie	:			BP	0.9605	5	<u> </u>	sh Point *C		H
A -30 to		92066	4	te	0.9574	5		e Point		1 1
B (105 °	1121.		4	c	0. 267	5		Spec.	<del></del>	2
С	233.		5	ΔHc kcal/m ΔHf	1,16	2		ra V.		-
A*  -30 to		20562	5	ΔFf	1.16	-		Ray Dif.		١. ١
B*[_65*	1047.	•	"	Viscosity	1			ared		1
c			i i	centistokes		1		ubility in	1	
t <sub>k</sub> [ t				7 30 °C	0.410	3		etone arbon tet.	1	1 1
\$ 0					1			nzene		
A'   t					1	1		her		
B''	<u>-</u> ∤			B, to				Heptane hanol		1 1
A'* to	_		<del>                                     </del>	A' I C	1	1		ater	1	1 1
B's				(B <sup>V</sup> )  to	-		w.	ater in		
Ac  105 t	7	35778	5	(A <sup>V</sup> )  °C	1	1				
Bc tc	1436.		5		+	<del> </del>	l			
Cc	278.		5	c <sub>p</sub> liq. *K		1	Ħ			
Cryos. A consts. B				c <sub>p</sub> vap300°K 400	0.26544 0.36821	2 2				
t, °C	47.	80	5	c <sub>v</sub> vap.	į		1			i l
$T_R = 0.$	75 T <sub>c</sub>						* g	rams/100 gra	ms solver	t
		-Dow	2-A	PI 3-Lit. 4	Calc, from de	t. da				
SOURCE:	<u>-</u>		AI					-, -,		
PURIFICA	TION		AI							
LILERAI	UKE KE	PERE	NCE	S: 3 Timmer:	mans					
1										

No. 2 STRUCTURAL FORMULA NAME 1 - Methylcyclopentene Molecular C6H10 Mole Molecular Ref. CH<sub>2</sub> H<sub>2</sub>C Weight 82,140 % Pur Ref. Ref. F, P. \*C -127. 2 dt/dP f •to F.P. 100% °C/mm g \_ <u>\*</u>K 25°C 0.1924 B. P. °C h BP 0.04310 2 760 mm 75.8 2 0.03642 5 f' to 100 21.38 te 5 g¹ \_K 30 -2.51 5 30 mm 0.5974 5 10 -20,60 5 h' ΔHm cal/g 5 -50,36 300 to -0.04019 m ΔHv cal/g Pressure 1 600 °K 0.00121 n 25°C 95.69 5 mm 25°C 117.6 5 -0.06304 o 4 30 mm 98.91 5 te 943.17 5 BP 85.80 5 -0.03654 700 to Density te (d, e) 84.61 5 n' 11000 °K 0.00130 4 g/ml 20°C 0.7802 5 84.59 0.7752 ٥' -0.06487 25 2 4  $d_4^t$ AHV/Te 19.51 5 30 0.7702 4 Surface tension d to 98.49 -5 0.8003 4 dynes/cm. 20°C 23.33 5 \_90 <u>•c</u> 0.1675 5 -0.03982 ь 30 22.12 5 to 1 40 20.95 5 Ref. Index e' •c 20°C [P] 1.4330  $n_{D}$ 2 Parachor d g/ml 0.273 5 25 v ml/g 1.4302 2 20°C 3.658 30 1.4271 4 30 269. 5 40 "C" 0,7367 4 P<sub>c</sub> mm 29596. 5 Sugd. 231.5 5 MR (Obs.) 27.36 2 PV/RT Exp. L. 1. %/wt. MR (Calc.) 27.241 5 2 25°C 0.9921 4 (nD-d/2)1.0429 u. 30 mm 1.0000 124. 2 Dispersion 5 Dielectric BP 0.9578 5 Flash Point °C -5 to t<sub>e</sub> 0.9516 5 Fire Point 6.86884 0.263 ťc [130\_°C 1199.6 M Spec. C 225. 5 AHc kcal/m Ultra V. ΔHf A\*| -5 1.2041 5 to X-Ray Dif. ΔFf B+ 105 °C 1121.3 Infrared ĸ Viscosity Solubility in c centistokes Acetone to t<sub>x</sub> Carbon tet. •c Benzene to Ether В' <u>•с</u> n-Heptane C в Ethanol A'\* •c Water to Water in B'\* (BV) •c to Ac | 130 to 7.29519 (AV) °C Bc \_tc\_ •c 1524.9 сp liq. ۰ĸ Сc 5 271. Cryos. A. cp vap.300°K 0.29584 consts. B° 0.39567 400 C, vap. t °C 83.04 5  $T_{R} = 0.75 T_{c}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

NAME	3-Met	hylcy	clop	entene		$\Box$	STRUC	TURAL	FORMUL.	A
Mole	Ref.	Mol	lecul	NF	Molecular	$\dashv$		H <sub>2</sub> C CH	СН	
% Pur.		For	mula	C <sub>6</sub> H <sub>10</sub>	Weight 82.140			H <sub>2</sub> C	CHCH3	
			Ref.			Ref.				Ref
F. P. °C				dt/dP	İ		1	to		
F.P. 100%	ļ		_	*C/mm 25*C	0,1339	5	g	• <u>K</u>		
B. P. *C 760 mm	65.0		2	BP	0.0418	2	h			
100	12.2	2	4	t <sub>e</sub>	0.03622	5	f.	to		
30 10	-10.9		4 5	30 mm	0.5796	5_	g'	·• <u>K</u>		
i	-28.5		5	ΔHm cal/g	<u> </u>	<u> </u>	h'	300.4-	-0.0608	4
Pressure				ΔHv cal/g	00.30	-	m   n	300 to	0.0013	4
mm 25°C	176.7		5	25°C 30 mm	88.28 95.67	5	0		-0.0 <sub>6</sub> 37	4
t <sub>e</sub>	913.3	<u> </u>	5	BP	83.17	5	m'	700 to	0.0098	4
Density g/ml 20°C	0.7	622	2	t <sub>e</sub> (d, e)	82.20 82.19	5	n'	1000 •K	0.0012	4
at 25	0.7	572	2	AHv/Te	19.62	5	· .		-0.0 <sub>6</sub> 43	4
	0.7		4	d -10 to	93.87	5		tension		
a b	-0.0		4	_e_ _8 <u>0 °C</u>	0.1646	5	dynes/	m. 20°C 30	21.22 20.10	5
Ref. Index	†	2		d'  to				40	19.00	5
n <sub>D</sub> 20°C			2	d <sub>c</sub> g/ml	0, 268	5	Parach	or [P]		
25 30	1.4		2	v <sub>c</sub> ml/g t <sub>c</sub> *C	3, 735	5		20°C		
"C"	0.7		4	tc •C	250.	5		40		
MR (Obs.)	27.3		2	P <sub>c</sub> mm	28713.	5			231.5	5
MR (Calc.	) 27.2·	4	4	PV/RT 25°C	0,9720	5	Exp. L	.1.%/wt.		ļ
(nD-d/2)	1.0	396	2	30 mm	1.0000	5	Disper	u. sion	119.	2
Dielectric	ļ			BP	0.9590	5		oint C		T
A -10 to B  119 °C		7259	4	t e t c	0.9538 0.27	5	Fire Po	oint		
c 11.7_0	227.		5	ΔHc kcal/m	<del>                                     </del>	<del> </del>	M. Spe			
A* -10 to	1.2	1879	5	ΔHf ΔFf	İ		Ultra V X-Ray		1	
B*[80_°C	1089.0		5		<del></del>	-	Infrare			
с				Viscosity centistokes			Solubili			
t <sub>k</sub>				η °c		İ	Acetor Carbo			
-X	ļ						Benze			
A'   to B'   °C						ļ	Ether n-Hep	tane		
c, — — —				B <sup>V</sup> to A C			Ethan	ol		İ
A¹* to					_		Water Water			
B'* °C	<del> </del>		<del>├_</del>	(B <sup>V</sup> )  to					-	$\vdash$
Ac 119 to		9924	5	(A <sup>V</sup> )  °C		-			1	
Cc	271.		5	c <sub>p</sub> liq. *K						
Cryos. A° consts. B°				c <sub>p</sub> vap. °K						
t <sub>e</sub> °C	70.9	6	5	c <sub>v</sub> vap.	1				L	L
$T_{\mathbf{R}} = 0.7$									ms solver	nt
REFEREN	CES: 1-1	Dow	2-A	PI 3-Lit. 4-	Calc. from de	et. da	ta 5-Ca	lc. by for	mula	
SOURCE:			A	PI						
PURIFICA?	TION:		A	PI						
LITERATU	RE REF	ERE	NC E	5:						

							No. 4			
NAME	4-Methyl	cyclo	pentene		$\Box$	STRUCTURAL FORMULA				
						H <sub>2</sub> C CH CH	1			
24-2	7 ( )					1				
Mole % Pur.		lecul		Molecular Weight 82,14		(CH3)-HCCH	2			
		Ref.	1		Ref		Ref.			
F. P. *C			dt/dP			f   to				
F. P. 100%			*C/mm 25*C	0,1886	5	8K				
B. P. *C 760 mm	75.2	2	BP	0.04300	2	h				
100	20.91	5	t <sub>e</sub>	0.0364	5	f' to				
30 10	-2.94 -20.98	5	30 mm	0.5961	5	h'				
1	-50.68	5	ΔHm cal/g ΔHv cal/g		-	<u> </u>	0.06816 4			
Pressure mm 25°C	120, 16	5	25°C	93.10	5	n   _600 •K	0.00133 4 0.04426 4			
t <sub>e</sub>	941.63	5	30 mm BP	98.82 85.72	5	<b>⅓</b>				
Density	0.770/		t <sub>e</sub>	84.54	5		0.0427 4 0.00111 4			
g/ml 20°C dt 25 4 30	0.7747	2 2	'e 'a, c,	84.52	5		0.06365 4			
	0.7698	5	ΔHv/T <sub>e</sub>	19.53 98.32	5	Surface tension				
a b	0.7992 -0.03958	5	1	0.1676	5		3. 25 5 2. 08 5			
Ref. Index	1	Ė	d' to		1		2.08 5 0.93 5			
n <sub>D</sub> 20°C	1.4306 1.4278	2 2	d g/ml	0, 276	5	Parachor [P]				
30	1.4249	4	vc ml/g	3.627 268.	5	20°C				
"C"	0.7334	4	tc *C P <sub>c</sub> mm	29679.	5	40 Sugd. 23	1.5 5			
MR (Obs.)	27.25	2	PV/RT	27017.	<del> </del>	Exp. L.1.%/wt.	1.5			
MR (Calc. (nD-d/2)	27.241	5 2	25°C	0.9920	4	u.				
Dielectric	1		30 mm BP	1.0000 0.9579	5	Dispersion				
A -2 to	6.87015	4	ţ.	0.9518 0.262	5	Flash Point *C Fire Point				
B 1130.€	1197.6	5	t <sub>c</sub>	0.202	<del>-</del>	M Spec.				
A* -2 to	<del></del>	5	ΔHf			Ultra V. X-Ray Dif.				
B* 100 °C	1119.4	5	ΔFf Viscosity	ļ	<u> </u>	Infrared				
l c	_[		centistokes			Solubility in +	ļ			
t <sub>x</sub> to			η •c	ļ		Carbon tet.	l			
A' to	+	<del>                                     </del>				Bensene Ether				
B' *	<u>-  </u>		B <sup>V</sup>   to		┢	n-Heptane				
A'+ to	<del> </del>	$\vdash$	B' to			Ethanol Water				
B'* *C			(B <sup>V</sup> ) to			Water in				
Ac   130 to		5	(A <sup>V</sup> )  •C		L_					
Bc tc_C	1522.2 271.	5	c <sub>p</sub> liq. •K							
Cryos. A			cp vap.300°K	0.29340	2					
consts. B	02.22	<del> </del>	400 c, vap.	0.39688	2					
t <sub>e</sub> °C T <sub>R</sub> = 0.7	82.37	5	V -1.	L		L				
	ES: 1-Dow	2 - 4 1	PI 3-14- 4-0	ala francisco		grams/100 grams				
SOURCE:		AF		alc, from det	. 08	ta 5-Calc. by formu	IT#			
PURIFICAT	ION:	A.F				· · · · · · · · · · · · · · · · · · ·				
	RE REFERE			<del></del>						
}										
L										

NAME	l -Ethyleye	lope	ntene	$\dashv$	STRUCTURAL H2C C(C	FORMUI	LA	
Mole % Pur.	Ref. Mo	lecul rmuli	ar C <sub>7</sub> H <sub>12</sub>	Molecular Weight 96.16	6		CH2	
		Ref.	<u> </u>		Ref.			Ref.
F. P. *C	-118.4	2	dt/dP			f to		T
F.P. 1009	-	1	°C/mm			g  •K		
B. P. *C		$\vdash$	25°C	0.5569	5	h		
760 mm	106.3	2	BP	0.0467	2	<del></del>		+-
100	47.36	5	<b>'</b> •	0.03698	5	f' to		
30 10	21.49 1.91	5	30 mm	0.6466	5_			
l 'ĭ	-30, 28	5	∆Hm cal/g			h'		+
Pressure	† · · · · · · · · · · · · · · · · · · ·		ΔHv cal/g		!	m to		1
mm 25°C	35, 86	5	25°C	91.96	5	<u> </u>		
t.	1026.0	5	30 mm BP	92.51 79.58	5 5			4
Density	1		t.	77.96	5	m' to		1
g/ml 20°C		2	t (d, e)	77.90	5	n'  K_		ł
dt 25	0.7936	2	ΔHv/T <sub>e</sub>	19.20	5			
	0.7889	_	d 20 to	95.78	5	Surface tension		İ
a b	0.8167	4		0.1524	5	dynes/cm. 20°C	25.39	5
	-0.0392	-	d' l to			30 40	24.22 23.08	5
Ref. Index		2	e, 1 .c			h	23.00	+-
n <sub>D</sub> 20°C	1.4384	2	d <sub>c</sub> g/ml	0.264	5	Parachor [P] 20°C		İ
30	1,4355	4	v <sub>c</sub> ml/g t <sub>c</sub> °C	3.784	5	30		
"C"	0.7325	4		303.	5	40		
MR (Obs.)	<del></del>	2	P <sub>c</sub> mm	25668.	5		270.5	5
MR (Calc.		5	PV/RT	0.0005	4	Exp. L.1.%/wt.		1
(nD-d/2)	1.0419	2	25°C 30 mm	0.9995 1.0000	5	u. Dispersion	119.	2
Dielectric	İ		BP	0.9534	5		117.	
A 20 to	6,86113	4	t.	0.9443	5	Flash Point *C Fire Point		
B   160 °C		4	t <sub>c</sub>	0.260	5		ļ	<del>-</del>
_c	219.	5	ΔHc kcal/m			M. Spec. Ultra V.		
A* 20 to	1.23806	5	ΔHf ΔFf	1	1	X-Ray Dif.		
B*[135 °C	1212.6	5		ļ	$\vdash$	Infrared		
K ———			Viscosity centistokes			Solubility in +		
t <sub>k</sub>   to	-		η ·c			Acetone		
٠٠ د	;		<b>'</b>			Carbon tet. Benzene		
A'   to	1	<b>†</b>	1	}		Ether	1	1
B' 'C	<u>:  </u>		B <sup>V</sup> to	<del> </del>	-	n-Heptane		
C' T	<b>_</b>	<u> </u>	B to			Ethanol		
A'* to B'* *C		ĺ	<b>L</b>	-	1	Water Water in	}	
		+-	(B <sup>V</sup> )  to	1			<del> </del>	+
Ac 160 to		5	(A <sup>V</sup> )  °C	<b></b>	L.		l	1
Bc tc C	265.	5	c <sub>p</sub> liq. •K	1			}	
Cryos, A		<del>                                     </del>	c <sub>p</sub> vap. *K		1		}	
consts. B			и -					
t <sub>e</sub> °C	117.31	5	c <sub>v</sub> vap.		1			į
$T_R = 0.7$	5 T <sub>c</sub>					grams/100 gra	ms solve	nt
REFEREN	CES: 1-Dow	2-A	PI 3-Lit. 4-	Calc. from de	t. da	ta 5-Calc. by for		
SOURCE:		AI	PI					
PURIFICA	TION:	Al	PI					
LITERATU	RE REFERE	NCE	S:					
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No. 6 STRUCTURAL FORMULA NAME 3-Ethylcyclopentene H<sub>2</sub>C Molecular Molecular Mole Ref. CHC2 H5 H2C C7H12 Formula Weight 96, 166 % Pur Ref. Ref. dt/dP f to F.P. 100% °C/mm g <u>°K</u> 25°C 0.4152 5 B. P. \*C h ΒP 0.0458 2 760 mm 98.1 0.03683 5 f' to 100 40.33 5 te •ĸ g' 30 14.99 5 30 mm 0.63319 5 5 10 -4.18 h' ∆Hm cal/g -35.68 5 m to ΔHv cal/g Pressure •ĸ n 25°C 88.99 mm 25°C 49.73 o 30 mm 90.35 5 t<sub>e</sub> 1005.7 5 ВP 77.89 5 Density 5 te (d, e) 76.42 n' ٠ĸ g/ml 20°C 0.7830 5 76.38 ٥' 25 0.7784 2  $d_4^t$ AHv/T 19, 27 5 30 0.7738 4 Surface tension 10 92.60 5 0.8014 a b dynes/cm. 20°C 23.51 120 •c 0.1499 -0.0391 30 22.40 5 to 40 21.33 5 Ref. Index e' •c 20°C 1.4319 [P]  $\mathbf{n}_{\mathbf{D}}$ dc g/ml vc ml/g tc °C Parachor 0.262 5 25 1.4293 2 20°C 3.821 5 5 30 1.4265 4 30 288. 40 "C" 0.7323 4  $P_c$  mm24859. 5 Sugd 270.5 5 31.85 MR (Obs.) 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 31.859 25°C 1.0000 (nD-d/2) u. 1.0404 2 30 mm 1,0000 5 Dispersion Dielectric BP 0.9561 5 Flash Point °C te 0.9479 A 10 to 6.84968 Fire Point tç 0.261 5 1150 °C 1262;5 M Spec. 220. 5 С ΔHc kcal/m Ultra V ΔHf A\* 10 to 1.23151 5 X-Ray Dif. ΔFf B\* 130 °C 1181.1 Infrared Viscosity ĸ Solubility in centistokes Acetone t<sub>k |</sub> Carbon tet. •c Benzene ۸'n to Ether B١ <u>•c</u> n-Heptane ВŶ Ċ١ to Ethanol ĀV I A'\* •c Water to Water in B'\* •c (BV) to Ac | 150 to 7.26899  $(A^{V})_{1}$ °C Bc \_tc\_ 1589.9 сp liq. ۰ĸ Cc 265. Cryos. A\* ۰ĸ cp vap. consts. B. te °C c, vap. 108, 16 5  $T_{R} = 0.75 T_{c}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

NAME	4-Eth	/l <b>c</b> ycl	lopen	tene			STRUCTURAL FORMULA				
Mole	Ref.	Mol	lecul	ar C <sub>7</sub> H <sub>12</sub>	Molecular		H <sub>2</sub> C CH     (C <sub>2</sub> H <sub>5</sub> ) HC	CH   CH2			
% Pur.		For		C <sub>7</sub> H <sub>12</sub>	Weight 96.16	6	(02H5)HC				
			Ref.		<u> </u>	Ref.			Re		
F. P. °C	<b></b>		$\vdash$	dt/dP			f to				
F.P. 100%	<del></del>		$\vdash$	*C/mm 25*C	0.5431	5	g <u>•K</u>				
B. P. *C 760 mm	106.		2	BP	0.04700	2	h				
100	46.70		5	t <sub>e</sub>	0.03725	5	f' to				
30 10	20.8		5	30 mm	0.6483	5_	h'				
1	-31.04		5	AHm cal/g		L	m to		_		
Pressure				ΔHv cal/g 25°C	91.16	5	n  •K				
mm 25°C	37.0° 1025.4	7	5	30 mm	91.84	5	•				
t <sub>e</sub> Density	1023.4		$\dashv$	BP	78.95 77.34	5	m¹ to				
g/ml 20°C			2	te te (d, e)	77.28	5	n'   •K_				
t 25	0.79		2	AHv/Te	19.06	5					
	0.78		4	d 15 to	94.99	5	Surface tension		_		
a b	-0.0		4 4	_e _  _125 <u>°C</u>	0.1514	5	dynes/cm. 20°C	25.37 24.13	5		
Ref. Index	+		H	d¹ to			40	22.93	5		
n <sub>D</sub> 20°C	1.44		2		0, 256	5	Parachor [P]				
25 30	1.4		2 4	d g/ml vc ml/g	3.898	5	20°C 30				
"C"	0, 7		4	tc °C	302.	5	40				
MR (Obs.)		112	2	P <sub>c</sub> mm	24877.	5		270.5	_5		
MR (Calc.	) 31.8	59	5	PV/RT 25°C	0.9988	4	Exp. L.1.%/wt.				
(nD-d/2)	1.04	<b>4</b> 1	2	30 mm	1,0000	5	u. Dispersion				
Dielectric	1			BP	0.9535	5	Flash Point C	t			
A 15 to		3219	4	te tc	0.9443 0.260	5	Fire Point				
B   <u>1</u> 60 <u>°</u> C	_ 1284.2 219.		4 5	ΔHc kcal/m	+	H	M. Spec.				
A* 15 to	<del></del>	0935	5	ΔHf			Ultra V. X-Ray Dif.	1			
B*[ 130 °C			5	ΔFf		┝	Infrared				
к — — — c				Viscosity centistokes			Solubility in +				
tkto				η °c		i	Acetone Carbon tet.				
<u>t, °C</u>							Benzene				
A'   to B'   °C							Ether				
č, ' =	-			B <sup>V</sup> to C			n-Heptane Ethanol				
A¹+ to							Water				
B'* °C			L	(B <sup>V</sup> )  to			Water in	<del>  </del>	-		
Acl 160 to		5226	5	(A <sup>V</sup> )  °C			1				
Bc tc C	266.		5	c <sub>p</sub> liq. °K							
Cryos. A°				c <sub>p</sub> vap. *K	}						
consts. B				_							
t <sub>e</sub> °C	117.0	6	5	c <sub>v</sub> vap.							
$T_R = 0.7$	5 T <sub>c</sub>						grams/100 gra	ms solven	t		
REFEREN	CES: 1-1	Dow			Calc. from de	t. da	ata 5-Calc. by for	mula			
SOURCE:			AF	PI							
PURIFICA	TION:		AF	PI							
LITERATU	RE REF	ERE	NCES	S:							

No. 8 STRUCTURAL FORMULA 1, 2-Dimethylcyclopentene NAME Molecular Weight 96.166 Ref. Molecular Mole C7H12 ĊHz H<sub>2</sub>C % Pur Formula Ref. Ref. F.P. -90.4 dt/dP f to F.P. 100% °C/mm g <u>•</u>K 25°C 0.5457 5 B, P. °C h BP 0.0467 760 mm 105.8 2 0.03699 5 f 46.87 to 100 4 t, g' •ĸ 30 21.02 4 30 mm 0.6461 10 1.46 -30.70 5 h' AHm cal/g 5 300 to -0.0167 AHv cal/g m Pressure 1\_600 °K 0.0012 25°C 30 mm 91.59 5 n mm 25°C 36,71 5 4 -0.0631 92.29 O 5 5 t<sub>e</sub> 1025.8 5 BP 79.45 700 to 0,0260 m' Density 77.84 5 te (d, e) g/ml 20°C n' 11000 °K 0.0012 0.7976 5 2 77.78 -0.0642 ۰, 4 25 0.7928 2 ď4 AHV/T 19.19 5 30 0.7878 4 Surface tension Т 21 95.47 d 5 to 0.8171 dynes/cm. 20°C 25.32 5 125 •c 0.1514 -0.0397 Ъ 4 30 24.09 5 ŧο ı 40 22.90 5 Ref. Index e' •c 1,4448 20°C 2 [P] n<sub>D</sub> Parachor d<sub>c</sub> g/ml 0.262 1.4420 25 2 20°C 3.815 5 ml/g 30 1.4392 4 t<sub>c</sub> 30 ·c 301. 40 "C" 0.7391 4 Sugd. 270.5 25374. 5 P<sub>c</sub> mm 5 MR (Obs.) 32.08 2 PV/RT Exp. L.1.%/wt. MR (Calc.) (nD-d/2) 31.859 4 25°C 0.9992 5 1.0460 u. 2 30 mm 2 1.0000 125.8 5 Dispersion Dielectric BP 0.9544 5 Flash Point °C t<sub>e</sub> 0.9454 21 to 6.85494 Fire Point tc 0,260 B [158 °C 1290.8 M Spec. Ultra V C 219. 5 AHc kcal/m ΔHf A\* 21 to B\* 126 °C 1.23077 5 X-Ray Dif. ΔFf 1208.3 Infrared ĸ Viscosity Viscour, centistokes °C Solubility in c Acetone to t<sub>x</sub> Carbon tet. ·c Benzene to Ether B١ •c n-Heptane ₽v C١ Ethanol  $\tilde{\bm{A}^{\bm{V}}}$ •c Water A'\* to Water in (BV) B'\* •c to Ac | 158 to 7.27475 5 (AV) •c Bc L •c 1626.6 \_tc\_\_' liq. •ĸ Сp Cc 265. Cryos. A\* c<sub>p</sub> vap. ٠ĸ consts. B° c, vap. te .C 5 116.81  $T_R = 0.75 T_c$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 4-Calc. from det. data 5-Calc. by formula 3-Lit. SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

No. 9 1, 3-Dimethylcyclopentene NAME STRUCTURAL FORMULA Mole Ref. Molecular Molecular C7H12 H<sub>2</sub>C -CHCH<sub>3</sub> % Pur. Formula Weight 96.166 Ref Ref. F.P. °C dt/dP to 100% F.P. °C/mm 1 ٠ĸ g 25°C 0.3360 5 B. P. \*C 0.045 h 2 RP 92. 760 mm 2 0.03665 ſ١ to 100 35.19 g' <u>•к</u> 30 10.24 4 30 mm 0.6236 5 10 -8.64 5 h' ∆Hm cal/g 1 -39.71 5 m 300 to -0.0406 ∆Hv cal/g Pressure n 600 °K 0.0013 4 25°C 86.54 88.73 5 5 mm 25°C 62.99 5 -0.0642 o 30 mm 989.21 5 t<sub>e</sub> 76.75 BP m' 700 to 0.0291 Density 75.41 5 0.0012 te (d, e) 'n 1000 K g/ml 20°C 0.766 2 75.39 5 o' -0.0642 4 0.761  $d_4^t$ 2 5 AHV/Te 19.37 30 0.756 4 Surface tension d 10 to 90.23 5 0.7861 -0.0399 dynes/cm. 20°C a b 21.52 <u>| 110 °C</u> 0.1466 30 20,40 5 to 40 19.31 5 Ref. Index e' i •c n<sub>D</sub> 20°C 1.428 2 [P] Parachor dc g/ml 0.253 5 25 1.425 2 20°C vc ml/g tc °C 5 3.949 30 1.423 4 30 276. 5 40 "C" 0.7422 4  $P_c$  mm 24077. 5 5 Sugd. 270.5 MR (Obs.) 32.3 2 PV/RT Exp. L.1.%/wt. 31.859 MR (Calc.) 25°C 0.9972 u. (nD-d/2)1.045 2 30 mm 1.0000 Dispersion Dielectric BP 5 0.9571 Flash Point C te tc A 10 to B 137 °C 0.9494 6.86807 Fire Point 0. 267 1252.0 M. Spec. AHc kcal/m C 222. Ultra V. ΔHf A\* 10 to 1.25419 X-Ray Dif. ΔFf B\*[111 °C 1170.8 Infrared Viscosity Solubility in centistokes Acetone t<sub>k</sub> [ to Carbon tet. •c ٤ı Benzene A' I to Ether B' i <u>•с</u> B<sup>V</sup> I n-Heptane C' to Ethanol •c Water to Water in (B<sup>V</sup>) B'\* •c to Ac 137 to 7.28841  $(A^{V})$ °C 1573.3 Bc tc •c c<sub>p</sub> liq. •ĸ Cc 266. Cryos. A° consts. B° cp vap. °K c<sub>v</sub> vap. to C 101.28  $T_{R} = 0.75 T_{c}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det. data 5-Calc. by formula API SOURCE: API PURIFICATION: LITERATURE REFERENCES:

No. 10 STRUCTURAL FORMULA 1, 4-Dimethylcyclopentene NAME Molecular C7H12 Molecular Weight 96, 166 Mole Ref. CH3HC ĊH2 % Pur. Formula Ref. Ref Ref. F, P. dt/dP f to F.P. 100% °C/mm g <u>°K</u> 25°C 0.3407 5 B. P. \*C h BP 0.046 2 760 mm 93.2 2 <sup>t</sup>e 0.03751 5 ſ١ to 100 35.35 5 <u>•</u>K g' 30 10.09 5 30 mm 0.6304 5 10 -8.97 5 h' ∆Hm cal/g -40.22 -0.03121 300 to m ΔHv cal/g Pressure 600 °K 0.00126 n 25°C 86.45 87.69 mm 25°C 62.90 -0.06364 4 30 mm ٥ 5 989.12 te 5 BP 75.33 5 700 to Density m' 0.02807 73.96 5 te (d, e) g/ml 20°C 0.779 n' 1000 °K 0.00118 2 73.92 5 -0.06416 0' 4 25 0.774 2  $\mathbf{d_4^t}$ ΔHv/T<sub>e</sub> 18,92 5 30 0.769 4 Surface tension 89.19 T 0 5 0.7990 dynes/cm. 20°C 23.02 5 0.1488 120 °C ь -0.0399 4 30 21.84 5 ď٠ Ī to 20.70 5 40 Ref. Index e١ 20°C 1,4283 [P] 2  $^{n}D$ Parachor d g/ml v ml/g 0.246 5 25 1.4255 2 20°C c ml/g 4.058 5 30 1.4225 4 30 280. 5 tc 40 "C" 0.7303 4 Pc 23075. 5 Sugd. 270.5 mm 5 MR (Obs.) 31.8 PV/RT Exp. L.1.%/wt. MR (Calc.) 31.859 25°C 0.9963 (nD-d/2)1,0388 u. 30 mm 1,0000 Dispersion Dielectric BP 0.9538 Flash Point °C 0.9458 A 0 to 6. 78405 t<sub>e</sub> 4 Fire Point 0.261 1226.4 tc В <u> 140 °C</u> M Spec. C 221. 5 AHc kcal/m Ultra V. ΔHf 0 to A\*| 1.17518 5 X-Ray Dif. ΔFf B\* 140 °C 1146.7 Infrared ĸ Viscosity Solubility in c centistokes Acetone to t<sub>x</sub> Carbon tet. •c Benzene A' I to Ether B١ <u>.c</u> n-Heptane вŸ C١ to Ethanol  $\tilde{\mathbf{A}}^{\mathbf{V}}$ AI+ •c Water Water in B'\* •c (BV) to Ac | 140 to 7.20417 5 (AV) °C Bc \_tc\_ •c 1549.7 cp liq. °K Cc 266. 5 Cryos. A\* c<sub>p</sub> vap300°K 0.31508 consts. B° 0.41595 2 400 te C c, vap. 102.69 5  $T_R = 0.75 T_c$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

NAME		1,5-Di	imet	hylcy	clopentene		STRUCTURAL FORMULA  C(CH <sub>3</sub> ) HC  CH				
Mole % Pur.		Ref.	Mo: For	lecula mula		Molecular Weight 96,166	,		ı	CH   CH₂	
				Ref	T	T	Ref.				Ref.
F. P. °C	T.	118.		2	44/470			. 1	T		
F.P. 1009				<del>  -</del>	dt/dP °C/mm			f	to K		
	+			$\vdash$	25°C	0.4814	5	g			
B. P. °C 760 mm	1	102.		2	BP	0.046	2	h			
100	1	43.89	)	5	t <sub>e</sub>	0.03675	5	f'	to		
30	-	18.36		5	30 mm	0.6386	5	g'	; <u>•K</u>		
10	1	-0.98		5	ΔHm cal/g			h'			
1	1	-32.81	ļ 	5	<del></del>	<del> </del>	+	m	300 to	-0, <b>04</b> 057	4
Pressure	1				ΔHv cal/g 25°C	90.71	5	n i	_ 600 <b>.</b> K	0.00131	
mm 25°C		42.04		5	30 mm	91.69	5	0		-0.0 <sub>6</sub> 416	4
t <sub>e</sub>	+-	013.58	, 	1-3-1	BP	78.96	5	m'	700 to	-0.0 <sub>4</sub>	4
Density g/ml 20°(	-	0.70		2	te (3 a)	77.43	5	ו'ת	1000 *K		
	1	0.78 0.77		2	te (d, e)	77.38	5	0'		-0.0 <sub>6</sub> 468	
d <sub>4</sub> 25		0.77		4	ΔHv/T <sub>e</sub>	19.31	5				-
a	+	0,80	103	4	d 0 to	94.49	5		face tension es/cm. 20°C	23, 15	5
b	1	-0.00		4		0, 1522	5	gyn	30	21.96	5
Ref. Index	.				d' to				40	20.80	5
n <sub>D</sub> 20°0		1.43	331	2	<del></del>		+	Par	achor [P]		
- 25	-	1.43		2	a g/mi	0. 263 3. 796	5		20°C		
30	$\perp$	1.42	271	4	d <sub>c</sub> g/ml v <sub>c</sub> ml/g t <sub>c</sub> °C	292.	5	İ	30		
"C"	1	0.73	369	4	P <sub>c</sub> mm	24909.	5		40 Suad	270.5	5
MR (Obs.		32, 1		2		24707.	1-	<u> </u>		210.3	-
MR (Calc.	)	31.85		5	PV/RT 25°C	0.9990	4	Exp	. L.1.%/wt.		
(nD-d/2)		1.04	13	2	30 mm	1,0000	5	Dis	u. persion	120.8	2
Dielectric					BP	0.9534	5		sh Point *C		┝╌
A 0 to		6, 88	3081	4	te	0.9448	5		e Point	İ	1
B   150 °C	<u>.</u>  1	288.0		4	t <sub>c</sub>	0. 258	5		Spec.		<del> </del>
С	4	220.		5	ΔHc kcal/m ΔHf				ra V.	1	
A* 0 to			224	5	ΔFf	1			Ray Dif.		
B*[_130 °C	<u>-</u>  '	206.5		5	Viscosity		$\vdash$	Infr	ared		L
c					centistokes				ıbility in +		
t <sub>k</sub>				1	η ·c				etone	1	
ا <del>ب</del> ا	;				i '	1			rbon tet.		l
A'  to						1		1	her		
B'°	2				_v I	<u> </u>	+		Heptane		
	+			<u> </u>	B <sup>v</sup> to A <sup>v</sup> C				hanol iter		l
A'* to B'* *(					⊢.=v <del>.−</del> − - ·	-			iter iter in	1	
	$\rightarrow$			<del> </del> -	, , , , , , , , , , , , , , , , , , ,						<u> </u>
Ac 150 to	١,	7.30 1618.1	JU 3 7	5	(A <sup>V</sup> )  °C	<b></b>	1			]	
Bc tc C	-1'	265.		5	c <sub>p</sub> liq. *K					1	1
Cryos. A	+			$\vdash$	1 -	0 31500	.				
consts. B					c <sub>p</sub> vap.300°K 400	0.31508 0.41699					
te °C	+	112, 39	,	5	c vap.	0.410//	-			i	
$T_R = 0.$	75 T			لــُــا	u ·	1	1	+ ~-	ams/100 gra	ma a=1	<u> </u>
		<del>-y</del>	<b>\</b>	2 4	DT 2 1 is 4	Cala from de					
	<u> </u>	J: 1-L	, U #	AF	PI 3-Lit. 4-	Caic, from de	Qa	<b></b> 5	-Care, by for		
SOURCE:											
PURIFICA				AI							
LITERATI	JKE	KEF	ERE	NCES	5:						

No. 12 STRUCTURAL FORMULA NAME 3, 3-Dimethylcyclopentene H<sub>2</sub> C Molecular C7H12 Molecular Mole Ref. H<sub>2</sub>C C(CH3)2 Weight 96.166 % Pur Ref Ref. Ref. F.P. \*C F.P. 100% dt/dP f to °C/mm •ĸ g ١ 25°C 0.2884 B. P. \*C h ВP 0.045 2 88. 760 mm 2 0.03711 5 f to 100 31,32 5 g' ۰ĸ 30 6.51 5 30 mm 0.6195 5 10 -12.23 5 h' AHm cal/g 1 -43.00 5 300 to -0.04785 m ١ ΔHv cal/g 0.00128 -0.0<sub>6</sub>312 Pressure 600 •K n 25°C 85.68 5 mm 25°C 75.30 5 4 87.00 30 mm 5 974.25 t<sub>e</sub> 5 BP 74.84 5 700 to -0.03225 m' 1 Density g/ml 20°C 73.58 5 te te (d, e) 11000 °K 0.00136 'n 0.771 2 73.54 -0.0652 0 4 25 ΔHv/T  $\mathbf{d_{4}^{t}}$ 0.766 2 5 19.13 30 0.761 4 Surface tension 87.97 5 0.7910 -0.0<sub>3</sub>99 d to 4 dynes/cm. 20°C 22.08 110 0.1492 •c Ъ 4 20.94 19.82 5 30 à٠ to 40 e' Ref. Index 1.423 **n**D 20°C 2 [P] Parachor d g/ml vc ml/g tc °C 0.255 5 25 1.420 20°C 5 3.924 30 1.417 4 30 270. 5 ŧ, 40 "C" 4 0.7292 P<sub>c</sub> mm 5 23342. Sugd. 270.5 5 MR (Obs.) 31.8 2 5 PV/RT Exp. L.1.%/wt. 31.859 MR (Calc.) 25°C 0.9905 (nD-d/2)1.038 2 30 mm 1,0000 5 Dispersion Dielectric BP 0.9540 Flash Point °C 0.9466 t<sub>e</sub> 1 5 to 6.81726 Fire Point t<sub>c</sub> 0.260 1220.3 В 130 °C M Spec. C 222. 5 AHc kcal/m Ultra V. AHf 1.21398 5 A\*| 5 **to** X-Ray Dif. ΔFf B\* 120 °C 1141.5 Infrared Viscosity Solubility in centistokes c Acetone to C Carbon tet. Benzene ÃΊ to Ether <u>•c</u> B١ n-Heptane c' В Ethanol to ÃV İ °C Water A'\* to Water in (BV) B'\* •c to Ac | 130 to 7,23721  $(A^{V})_{1}$ °C Bc tc\_C 1538.1 сp liq. ۰ĸ 266. cp vap.300°K Cryos. A. 0.30780 consts. B. 0.41387 400 te C c<sub>v</sub> vap. 96.73 5  $T_R = 0.75 T_C$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

Mole % Pur.  F.P. °C F.P. 100%  B.P. °C 760 mm 100 30 10	88. 31.32 6.51	Aolecul. Formula Ref.	C7 <sup>H</sup> 12 V	Molecular Weight 96,16	6 Ref.	H2C/CH       (CH3)2C CH2	Ref.
F.P. °C F.P. 100% B.P. °C 760 mm 100 30	88. 31.32 6.51	Ref.	dt/dP *C/mm 25°C		-	(CH <sub>3</sub> ) <sub>2</sub> C — CH <sub>2</sub>	Ref
F.P. °C F.P. 100% B.P. °C 760 mm 100 30	88. 31.32 6.51	Ref.	dt/dP *C/mm 25°C		-		Ref
B.P. °C 760 mm 100 30	31, 32 6, 51	2	dt/dP °C/mm 25°C				
F.P. 100% B.P. °C 760 mm 100 30 10	31, 32 6, 51		*C/mm 25*C	İ	1 1	f to	
B.P. °C 760 mm 100 30 10	31, 32 6, 51			l .		g  •K	
100 <b>30</b> 10	31, 32 6, 51			0.2884	5	h l	
<b>30</b> 10	6.51		t	0.0450 0.03691	2	f' to	
	-12.23	5	30 mm	0.6195	5	g' <u>*K</u>	
		5	ΔHm cal/g		_	h'	
1	-43.00	5	ΔHv cal/g			m to	ļ
Pressure mm 25°C	75.30	5	25°C	91.24	5	" <u>*K</u>	
te	981.12	5	30 mm BP	87.00 75.30	5	<b> </b>	
Density			t_	74.03	5	m' to	1
g/ml 20°C	0.771	2 2	te (d, e)	74.01	5	;·	
d <sup>t</sup> 25 4 30	0.761	4	ΔHv/T <sub>e</sub>	19.23	5	Surface Associate	
	0.7911		d 5 to e 110 °C	87.93	5	Surface tension dynes/cm. 20°C 22.0	
ь	-0.0399	4	-å-  110	0.1435	5	<b>3</b> 0 20.9	
Ref. Index			e' j *C			40 19.8	1 5
<sup>n</sup> D 20°C	1.423 1.420	2 2	d <sub>c</sub> g/ml	0.251	5	Parachor [P] 20°C	
30	1.417	4	v <sub>c</sub> ml/g t <sub>c</sub> °C	3.991 271,	5	30	-
"C"	0.7292	4	P <sub>c</sub> mm	23432.	5	40 Sugd. 270.5	5
MR (Obs.)	31.8	2	PV/RT	23.32.	-	Exp. L.1.%/wt.	+-
MR (Calc.) (nD-d/2)	31.859 1.038	5 2	25°C	0.9968	4	u	
Dielectric	1.036	+-	30 mm BP	1.0000 0.9600	5	Dispersion	
A 5 to	6,8172	6 4	t_	0.9526	5	Flash Point *C Fire Point	
B   130 °C	1220.3	4	·c	0.265	5		
С	222.	5	ΔHc kcal/m ΔHf			M. Spec. Ultra V.	
A*  5 to B*  110 °C	1.2039	1 5	ΔFÍ	}	l	X-Ray Dif. Infrared	
к <u> </u>	1137.2		Viscosity			Solubility in +	
t, to			centistokes			Acetone	
tk to	}		ຸກ •c		İ	Carbon tet.	
A'   to		+			1	Benzene Ether	
B' <u>°C</u>			pv l		t-	n-Heptane	
	<u> </u>		B <sup>V</sup> to A <sup>V</sup> C		l	Ethanol Water	1
A'* to B'* *C			(B <sup>V</sup> )  to	1		Water in	
Ac   130 to	7.2372		(A <sup>V</sup> )  °C	1			1
Bc tc °C	1538.4	5	c <sub>p</sub> liq. •K	1	T		
Cc	266.	5	1.	1			
Cryos. A° consts. B°			c <sub>p</sub> vap. *K				
$t_e ^{\bullet}C$ $T_R = 0.75$	96.99 Tc	5	c <sub>v</sub> vap.	<u> </u>	<u> </u>	grams/100 grams so	luant.
		y 2-A	PI 3-1.it 4-4	Calc. from de	t. de	ata 5-Calc. by formula	vent
SOURCE:		AI		de			
PURIFICAT:	ION:	AI					
LITERATUR					-		
			-				

TABLE XVII. THIACYCLOPENTANES

NAME	TI	hiacy	clop	entan	ie			STRUCTURAL FORMULA					
	T	etral	nydro	thiop	hene				H <sub>2</sub> C/S	СНэ			
Mole % Pur.		Ref.	Mol	eculi mula	r c <sub>4</sub> H <sub>8</sub> s	Molecular Weight 88,170			- 1	Ĭ CH₂			
				Ref.			Ref.				Ref.		
F. P. °C		6.16	5	2	dt/dP			f	to				
F. P. 100	<u>*                                     </u>				*C/mm 25*C	1.02067	5	g	'•K				
B. P. *C 760 mm	1,	21.11	7	2	BP	0.04732	2	h_	!		$\vdash$		
100	6	51.15	52	5	t <sub>e</sub>	0.03619	1 1	f' g'	to •K				
30 10		34. 68 14. 47		5	30 mm	0.6629	5	h'	<u>v</u>				
1		9.39		5	ΔHm cal/g			m	to		+		
Pressure	.   .				ΔHv cal/g 25°C	108.45	5	n	<u>.</u> K				
mm 25°C		18.10 70.6	)	5	30 mm	107.43	5	٥					
Density	+				BP t <sub>e</sub>	92.78 90.72	5	m'					
g/m1 20°	c	0.99		2	le (a, e)	90.61	5	n' o'					
d <sub>4</sub> 25		0.99	3379 3885	2 4	ΔHv/T <sub>e</sub>	19.65	5				+-		
a	+	1.01	836	4	d 35 to		5		face tension les/cm. 20°C	33.68	5		
ь		0.0	98	4	d' 140 °C	5 111,10	5	8	30 40	32.37 31.10	5		
Ref. Inde		1 50	0483	2	e'   35 °C	0.1049	5	- D-	rachor [P]	31.10	+-		
25	Ŭ	1.50	217	2	d <sub>c</sub> g/ml	0.333 3.00	5	Fa	20°C				
30			921	4	vc ml/g tc *C	358.	5		30 40				
"C"		0.60		4	P <sub>c</sub> mm	38746.	5			212.7	5		
MR (Obs. MR (Calc		26. 17 26. 17		2 5	PV/RT			Ex	p. L.1.%/wt.				
(nD-d/2)	``		0548	2	25°C 30 mm	1.0000	5	Die	u. spersion	113.7	2		
Dielectri	=				BP	0.9550	5	<b></b>	sh Point C	113.1	Ť		
A 35 to		6. 9	518	4	te tc	0.9452 0.26	5		e Point				
B 1_200 °C	21	72.4 16.		4 5	ΔHc kcal/m		1		Spec.				
A* 35 to		1.27	7236	5	ΔHf ΔFf	İ			ra V. Ray Dif.				
B*[150°	<u>C   128</u>	36.8		5	Viscosity		┼─	Inf	rared		↓		
c	_1				centistokes				ubility in † cetone				
t <sub>k</sub> t	Ĉ				η °C	; [			arbon tet.				
A'   10 t		7. 34	1491	5					enzene ther				
B' 35 °		76.6		5	B <sub>v</sub> to		<del> </del>	n.	-Heptane				
C'	-+	34.	2004	5	A l °C		İ		thanol ater				
A'* 10 to B'* 35 *		1. 6. 77. 7	3884	5 5	(B <sup>V</sup> )  to	-1			ater in		1_		
Acl 200 t			7677	5	(A <sup>V</sup> )  °C	l l		1		İ			
Bc tc	C   174   27	18.6 70.		5	c liq. °F			1					
Cryos. A					c <sub>p</sub> vap. °K	:							
te °C		22 0		5	c vap.			1		1			
$T_R = 0.$		33.9	-		<u> </u>	_1	<u> </u>	+ ~	rams/100 gra	ma solve	nt.		
REFEREN		1-1	Dow	2-A	PI 3-Lit. 4	-Calc. from de	t. da		-Calc. by for		***		
SOURCE:	·			AI						-			
PURIFICA	TION	:		Al	PI								
LITERAT	URE	REF	ERE	NCE	5:								

NAME	2 - Me	thulth	incu	clopentane			STRUCTURAL	No. 2	
NAME				methylthiophen		$\dashv$	H <sub>2</sub> C/S		Λ.
				<del></del>	<del></del>	$\neg$	Hac		
Mole % Pur. 99	. 75 Ref.	Mole	cula		Molecular Weight 102.1	96	H2Ċ	ĊHz	
<i>A.</i> 1. 1. 7.	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		lef.	3 10	weight	Ref			Ref
F, P. °C	-100.71		2	dt/dP			f   to	T	1
F.P. 100			┪	°C/mm	I		g Land		ì
B. P. °C				25°C BP	1.5897 0.04895	5 4	h ,	ł	
760 mm 100	133.23		2 2	t	0.03658	5	f¹ to		
30	43.82	:	5	30 mm	0.6856	5	g'   'K	┪	
10 1	22.93 -12.02		5	ΔHm cal/g		Ш	h'	ļ	┼
Pressure			$\neg$	ΔHv cal/g 25°C	96,77	5	m   to	1	
mm 25°C	11.24		5	30 mm	95.01	5	0	1	
t <sub>e</sub> Density	1103.1		-	BP	81.99 79.98	5	m'   to	<b>†</b>	
g/ml 20°	0.95		2	te te (d, e)	79.89	5	n'  K	4	ŀ
dt 25	0.95		2	AHv/T	19.42	5	0'	<u> </u>	_
1 30	0.97		7	d   45 to		5	Surface tension dynes/cm. 20°C	30.63	5
ь	-0.03		4	d 150 to		5	30 30	29.61	5
Ref. Inde:	-			e'   15 to		5	40	28.61	5
<sup>B</sup> D 20°	C 1.49 1.48		2 2	d g/ml vc ml/g	0.33727	5	Parachor [P] 20°C		
30	1.48		4	t <sub>c</sub> *C	2.9649 362.	5	30		
"C"	0.67	70	4	P <sub>c</sub> mm	33467.	5	40 Sugd	251.7	5
MR (Obs. MR (Calc			2 5	PV/RT	<del></del>	Н	Exp. L.1.%/wt.		†
(nD-d/2)	1.01		2	25°C 30 mm	1.0000	5	u.	1,,,	2
Dielectric	:			BP	1.0000 0.9533	5	Dispersion Flash Point *C	114.	+-
A 45 t			3	te c	0.9420 0.256	5 5	Fire Point	1	
B 1500.	C 1418.50 215.36		3	ΔHc kcal/m		-	M Spec.		
A*  45 t			5	ΔHÍ ΔFÍ	1		Ultra V. X-Ray Dif.	1	
B* 160 °	C 1330.5		5	Viscosity	<del>                                     </del>	$\vdash$	Infrared	ļ	↓
c	_		ı	centistokes	1		Solubility in + Acetone	1	
	င္ပို			η •c			Carbon tet.		
A'   15 t	7.32	227	5				Benzene Ether		
B; ∟45 °	C 1618.1 233.		5	B <sup>V</sup>   to	<del> </del>	$\vdash$	n-Heptane	1	
A'* 15 t			5	B' to			Ethanol Water		
B'+ 45			5	(B <sup>V</sup> ) to			Water in	<u> </u>	4
Ac   200 t			5	(A <sup>V</sup> )  •C				1	ĺ
Bc _tc_	C 1795.7 268.		5	c <sub>p</sub> liq. •K					
Cryos, A	•			c <sub>p</sub> vap. •K					
te °C	147.67		5	c, vap.	İ			Ì	1
$T_R = 0.$		L	<u>- 1</u>		1		†grams/100 gra	me solver	
REFEREN		ow 2	-AP	I 3-Lit. 4-0	Calc, from de	t. dat	ta 5-Calc. by for	mula	
SOURCE:			Lit						
PURIFICA	TION:		Lit						
LITERATI	JRE REF	ERENC	CES	3 Ind. Eng.	Chem. 44, 14	30 (1	1952), P. T. White	et al.	

No. 3

NAME	3-Meth	ylthiacyc	lopentane			STRUCTURAL	FORMU				
			nethylthiophene		$\neg$	"S.					
						H <sub>2</sub> C/	CH2				
Mole % Pur. 99	. 7 Ref.	Molecula Formula		Molecular Veight 102.19	96	н <sub>2</sub> сснсн₃					
- W. C. C.		Ref		1	Ref.			Ref.			
F. P. *C	-81.16	2	dt/dP			f to					
F.P. 100		$\dashv$	*C/mm	i		g  •K					
B. P. *C			25°C BP	1.9622	5 4	h					
760 mm	138.67	2	t <sub>e</sub>	0.04961 0.03654	5	f'   to		$\top$			
30	75.90 48.14	5	30 mm	0.6954	5	g'• <u>K</u>					
10	26.95	5	ΔHm cal/g		+ -	h¹					
<u> </u>	-8.56	5	ΔHv cal/g		$\vdash$	m to					
Pressure mm 25°C	8.95	96   5	25°C	98.35	5	n   <u>*K</u>					
t <sub>e</sub>	1118.8	~   š	30 mm BP	96.24 83.31	5			$\perp$			
Density	1		t_	81.22	5	m' to					
g/ml 20°			'e (a, e)	81.14	5	", L					
dt 25	0.958		ΔHv/T <sub>e</sub>	19.44	5			+			
•	0.98		d 50 to	103.10	5	Surface tension dynes/cm. 20°C	31.69	5			
ъ	-0. 63		155 °C	0.1429	5	30	30.42	5			
Ref. Inde:			e'   50 ℃	0.0909	5	40	29.18	5			
<sup>n</sup> D 20°	1.492 1.490		d <sub>c</sub> g/ml	0.341	5	Parachor [P]					
30	1.48		vc ml/g tc °C	2.927	5	20°C					
"C"	0.67	32 4		359.	5	40					
MR (Obs.	<del></del>	2	P <sub>c</sub> mm	33472.	5		251.7	5			
MR (Calc	30.797	7   5	PV/RT 25°C	1.0000	5	Exp. L.1.%/wt.					
(nD-d/2)	1.010	07 2	30 mm	1.0000	5	Dispersion	112.	2			
Dielectric			BP	0.9532 0.9417	5	Flash Point C					
A 50 to			te tc	0.254	5	Fire Point					
c [200 7	216.179		ΔHc kcal/m			M. Spec.					
A+ 50 to	1.345	598 5	1HA	l		Ultra V. X-Ray Dif.					
B*[165 °	1364.3	5	ΔFf	<b></b>	-	Infrared					
K —			Viscosity centistokes			Solubility in +					
t <sub>k</sub>  ti			η °C		1	Acetone Carbon tet.	ec ec				
<sup>5</sup> x   <sup>3</sup> 0			·			Benzene	e0 e0				
A'   15 to B'   50 °C		036   5				Ether	<b>00</b>				
c' - 3 '	234.	5	B <sup>V</sup> to			n-Heptane Ethanol	ec ec				
A'+ 15 to	1.694	164 5	_A'   _ •c			Water					
B'* 50 °	1554.6	5	(B <sup>V</sup> )  to			Water in	<b></b>	+			
Acl 200 to	7.404	495   5 5	(A <sup>V</sup> )  °C		<u> </u>	}	}				
Bc tc	269.	5	c <sub>p</sub> liq. *K	1	1						
Cryos. A	•	$\neg$	c <sub>p</sub> vap. *K		1	<b>[</b>	İ				
consts. B			4 -					ĺ			
t <sub>e</sub> °C	153, 83	5	c <sub>v</sub> vap.	l	L	L					
$T_{\mathbf{R}} = 0.$						grams/100 gra		nt			
REFEREN	CES: 1-D			Calc. from de	t. da	ta 5-Calc. by for	mula				
SOURCE:		Li									
PURIFICA		Li				· · · · · · · · · · · · · · · · · · ·					
LITERAT	URE REFE	ERENCES	S: 3 Ind. Eng.	Chem. <u>44</u> , 1	430,	(1952) P. T. White	e et al.				
1											

No. 4 STRUCTURAL FORMULA NAME 2-Ethylthiacyclopentane H<sub>2</sub>Ç CH(C2H5) Molecular C6H12S Mole Ref. Molecular ĊН2 H<sub>2</sub>C Formula Weight 116.222 % Pur. Ref. Ref Ref. dt/dP f to F.P. 100% °C/mm g •K 25°C 4.02546 B. P. \*C h ВP 0.05176 760 mm 157. 2 t<sub>e</sub> ſ 0.03699 5 100 91. to 5 g' •ĸ 30 63. 5 30 mm 0.7223 5 10 41. 5 h! ∆Hm cal/g 4. 5 to AHv cal/g m Pressure °K 25°C n 92.69 mm 25°C 4.07475 ٥ 30 mm 89.00 5 t<sub>e</sub> 1169.1 5 BP 5 76.20 m¹ to Density te (d, e) 73.92 5 ٠ĸ g/ml 20°C n' 0.944 2 73.79 5 0.939 ٥' 25 30  $d_4^t$ 2 AHV/T 5 19.18 0.934 4 Surface tension 0.964 -0.0<sub>3</sub>1 T 97.49 5 60 to 4 a b dynes/cm. 20°C 31.08 1 180 °C 0.1356 5 4 30 29.78 28.52 ď۰ 5 20 to 95.14 5 1 40 5 Ref. Index e' 0.0981 60 5 20°C 1.490 n<sub>D</sub> 2 [P] Parachor d<sub>c</sub> g/ml 0.3166 5 **5** 25 1.487 v ml/g 20°C 2 3.1586 30 1.484 4 30 379. 5 40 "C" 0.6838 4 P<sub>c</sub> mm 27149. 5 Sugd. 290.7 5 35.6 35.595 MR (Obs.) 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 25°C 1.0000 5 (nD-d/2) u. 1.018 2 30 mm 1.0000 5 Dispersion Dielectric BP 0.9513 Flash Point °C 0.9380 6.92152 A | 60 to 4 Fire Point 0 251 5 1478.9 t<sub>c</sub> B [215 °C M Spec. C 209. 5 AHc kcal/m Ultra V. ΔHf A\* | 60 to B\* 185 °C 1.33267 5 X-Ray Dif. ΔFf 1388.4 5 Infrared ĸ Viscosity Solubility in c centistokes Acetone tō ኒ ኒ Carbon tet. •c Benzene A' | 25 to 7.28229 Ether 1681.4 B' ∟60 °C 5 n-Heptane c٠ вv 227. 5 to Ethanol Ā A'\* 25 to B'\* 60 °C •c Water 1.68091 5 Water in (BV) 1581.3 5 to Ac | 215 to 7. 33644 5 (AV) °C Bc |\_tc\_ ٠c 1852.2 5 liq. Сp ۰ĸ Cc 260. Cryos. A\* c<sub>p</sub> vap. ۰ĸ consts. B° c<sub>v</sub> vap. te °C 174.76 5  $T_R = 0.75 T_C$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

NAME	3-Ethylthia	cycl	opentane			SI	RUCTURAL	FORMUI	LA
	3-Ethylteti	rahyo	rothiophene				H <sub>2</sub> C/S	СНа	
Mole % Pur.	Ref. Mo	lecul muli	ar c <sub>6</sub> H <sub>12</sub> s	Molecular Weight 116.2	22		-	CHC <sub>2</sub> H <sub>5</sub>	
		Ref.			Ref.				Ref.
F.P. °C			dt/dP			f	to		
F. P. 1009	•		*C/mm 25*C	5, 4821	5	g	'• <u>K</u>		
B. P. °C 760 mm	165.	2	BP	0.05277	4	h_	!		4
100	98. 22	5	te	0.03714	5	f' g'	to K		
30 10	68.80 46.39	5	30 mm	0.7362	_ 5	h'	i <del></del>		1
1	8. 94	5	ΔHm cal/g			m	l to		+-
Pressure			ΔHv cal/g 25°C	94.96	5	n	• <u>K</u>		
mm 25°C	2.92058 1192.4	5 5	30 mm	90.55	5	°	i		
Density	1		BP te (d.e)	77.56 75.14	5	m'			
g/ml 20°0		2	te (d, e)	75.00	5	n' o'	!		
d <sub>4</sub> 25	0.945 0.940	2	ΔHv/T <sub>e</sub>	19.10	5				+
a	0.96999	4	d 70 to	99.84	5		face tension les/cm, 20°C	31.88	5
ь	-0. 03999	4	d 185 °C d 25 to	0.1350 97.48	5	8,	30	30.56	5 5
Ref. Index		2	e'   70 °C	0.1007	5	<u> </u>	40	29, 27	3
<sup>n</sup> D 20°0	1.489	2	d <sub>c</sub> g/ml	0.306	5	Pa	rachor [P] 20°C		
30	1.487	4	vc ml/g tc °C	3.264 392.	5		30	ļ	
"C"	0.6821	4	P <sub>c</sub> mm	27341.	5	ļ.	40 Sugd.	290.7	5
MR (Obs. MR (Calc.		2	PV/RT		<b>-</b>	Ex	p. L.1.%/wt.		
(nD-d/2)	1.016	2	25°C 30 mm	1.0000	5	1	u.		
Dielectric			BP	1.0000 0.9514	5	L	persion sh Point °C		+
A 70 to		4	t <sub>e</sub>	0.9375 0.250	5		e Point		
B 1_230 °C	208.	4 5	tc ΔHc kcal/m	0.230	-	М.	Spec.		
A* 70 to			ΔHf				ra V. Ray Dif.		
B*[ 195 °C	1414.3	5	ΔFf		<del> </del>		rared		
c			Viscosity centistokes		}		ubility in +		
t <sub>k</sub> to			η <b>·</b> c		İ		cetone arbon tet.	1	
A'   25 to	1	5	1				enzene ther	l	
B' _ 70 °C	1708.9	5	<u> </u>		<b></b>		·Heptane	l	
C'	226.	5	B <sup>V</sup> to A <sup>V</sup>   *C		l		thanol ater		
A'* 25 to B'* 70 °C		5	$\frac{1}{(\mathbf{B}^{v})^{l}} - \frac{c}{to}$	-			ater ater in		
Ac  230 to	7, 33538	5	(A <sup>V</sup> )  °C						
Bc tc *C	1888.2	5	c <sub>p</sub> liq. *K			1		[	
Cc	<u> </u>	5	<b>S</b> I						
Cryos. A consts. B	•		c <sub>p</sub> vap. *K						
te °C	183.98	5	c <sub>v</sub> vap.		1	Ì			
$T_{\mathbf{R}} = 0.7$	'5 T <sub>c</sub>					† g	rams/100 gra	ms solve	nt
REFEREN	CES: 1-Dow			Calc. from de	t. da	ata 5	-Calc. by for	mula	
SOURCE:			PI						
PURIFICA			PI						
LITERATI	JRE REFERE	NCE	5:						
<b>L</b>									

No. 6 2, cis-5-Dimethylthiacyclopentane STRUCTURAL FORMULA NAME CH3 HC CHCH3 Molecular C6H12S ĊHz Ref. Molecular Weight 116.222 Mole H<sub>2</sub>C 99.3 % Pur. Formula Ref. Ref Ref. F.P. C F.P. 100% -89.4 2 dt/dP to °C/mm <u>•K</u> g 25°C 2.2744 0.05005 5 B. P. \*C h BP 760 mm 142.28 2 0.03670 5 f to 100 78.99 5 £' •ĸ 30 51.14 0.6969 5 30 mm 5 10 29.92 h' ∆Hm cal/g 5 -5.53to ΔHv cal/g m Pressure •ĸ 25°C 88.53 mm 25°C 7,5508 o 30 mm 86.04 t<sub>e</sub> 1131.4 5 73.77 BP 5 Density to m 71.74 te (d, e) 5 •K g/ml 20°C n' 0.9222 2 71.64 5 ď4 0.9177 2 5 AHv/Te 19.33 30 0.9132 4 Surface tension ď 50 to 92.92 5 0.9402 -0.0<sub>3</sub>90 4 dynes/cm. 20°C 28.30 160 0.1346 <u>с</u> 5 Ъ 27, 21 ď 30 20 90.91 26.15 5 40 Ref. Index e¹ 50 0.0953 5 1.4799 20°C 2 (P)  $\mathbf{n}_{D}$ Parachor 0.3107 5 d<sub>c</sub> g/ml 1.4774 25 2 20°C ml/g 3.2189 5 30 1.4749 4 c 30 •c 5 t<sub>c</sub> 355. 40 "C" 0.6864 4 P<sub>c</sub> mm 26598. 5 290.7 5 Sugd. MR (Obs.) 35.80 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 35.793 25°C 1,0000 5 (nD-d/2) 1.0188 2 u. 30 mm 1,0000 2 Dispersion 114. Dielectric BP 0.9549 5 Flash Point °C 0.9429 A | 50 to te 6.90415 3 Fire Point t<sub>c</sub> 0.254 5 1417.766 \_200 °C 3 M Spec. 210,102 3 AHc kcal/m Ultra V. ΔHf 1.32534 A\* 50 to 5 X-Ray Dif. ΔFf B+ 170 °C 1329.4 Infrared ĸ Viscosity Solubility in c centistokes Acetone t<sub>k</sub> | to Carbon tet. •c œ Bensene œ 7.27596 20 to AT 5 Ether œ B١ 50 °C 1618.7 5 n-Heptane 00 вŸ 5 228. to Ethanol œ ĀV A'\* •c Water 20 to 1.68214 5 Water in B'\* 50 °C 5 (BV) 1520.1 to Ac | 200 to 7.31720 5 (A<sup>V</sup>) °C Bc tc\_C 1774.9 cp liq. ۰ĸ Cc 259. Cryos. A. •ĸ cp vap. consts. B° c, vap. te C 158,10 5  $T_R = 0.75 T_c$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det. data 5-Calc, by formula SOURCE: Lit. **PURIFICATION:** Lit. LITERATURE REFERENCES: 3 Ind. Eng. Chem. 44, 1430 (1952), P. T. White et al.

	<del></del>					<del></del>	No. 7
NAME	2, tran	18-5-Dim	ethylthiacyclope	ntane		STRUCTURAL	
	trans	Tetrahyo	dro-2, 5-dimethy	lthiophene		нзсис 5	Н СН3
Mole % Pur.	Ref.	Molecul Formul		Molecular Weight 116,22	22	 H2CC	iH <sub>2</sub>
		Ref			Ref.		Re
F, P, *C	-76.35	2	dt/dP			f to	
F.P. 1007	•		°C/mm		١.	g• <u>K</u>	1 1
B. P. *C			25°C BP	2.1717 0.05025	5	h	
760 mm 100	142.0	2   2	ι,	0.03683	5	f¹ to	]
30	50, 25	5 4	30 mm	0.7028	5	g' <u>*K</u>	l i
10 1	28.84 -6.97		AHm cal/g		Γ	h' i	
Pressure	+,	<del>-   -</del> -	ΔHv cal/g			m to	
mm 25°C	8.09		25°C 30 mm	86.92 84.84	5	<del>-</del> -	1
te	1130.8	5	BP	73.30	5	m¹ to	
Density g/ml 20°0			te , , ,	71.45	5	n'ı eK	
	0.91		t <sub>e</sub> (d, e)	71.31	i	0'	1
d <sub>4</sub> 25	0.90		ΔHv/T <sub>e</sub>	19.27	5	Surface tension	
	0.93		d 50 to	91.17 0.1258	5	dynes/cm. 20°C	27.89 5
ь	-0.03	92 4	d' 25 to	88.97	5	30 40	26.79 5 25.71 5
Ref. Index		76 2	e'   50 °C	0.0820	5	Parachor [P]	25.11
<sup>n</sup> D 20°C	1.47		d <sub>c</sub> g/ml	0.309 3.232	5	20°C	
30	1.47	725 4	vc ml/g tc °C	354.	5	30	
"C"	0.68	359 4	P <sub>c</sub> mm	26445.	5	40 Sugd	290.7 5
MR (Obs.)			PV/RT	<del> </del>	$\vdash$	Exp. L.1.%/wt.	12,011
MR (Calc. (nD-d/2)	35.67		25°C	1,0000	5	u.	
Dielectric		-	30 mm BP	1.0000 0.9537	5	Dispersion	114. 2
A 50 to		1097 4	t.	0.9430	5	Flash Point *C Fire Point	
B 1197 °C		4	l c	0.254	5	M. Spec.	<del>                                     </del>
С	215.	4	ΔHc kcal/m ΔHf	1	}	Ultra V.	
A* 50 to B* 168 °C		5769   5	ΔFf	Į.	l	X-Ray Dif.	
K	- 1330.1	"	Viscosity			Infrared	<del>                                     </del>
\$ C - +=	-		centistokes			Solubility in Acetone	
t <sub>k</sub>			η ·c		1	Carbon tet.	
A'   25 to	7, 31	175 5	1		1	Bensene Ether	
B'50 °C		175 5	BV I		╁	n-Heptane	
C'	233.	5	B <sup>V</sup> to A <sup>V</sup> C	l		Ethanol Water	
A'* 25 to B'* 50 °C		163   5	(B <sup>V</sup> )  - to	·		Water in	
Acl 197 to			(A <sup>V</sup> )I °C		-		
Bc tc *C	1816.4	5	c <sub>p</sub> liq. *K		t	1	
Ce —	264.	5	41				
Cryos. A' consts. B'			c <sub>p</sub> vap. *K				
t <sub>e</sub> °C	157.80	) 5	c <sub>v</sub> vap.	<u> </u>	<u>L_</u>	L	
$T_R = 0.7$						grams/100 gra	
	CES: 1-E			Calc. from de	t. de	ata 5-Calc, by for	mula
SOURCE:			PI PI				
PURIFICA							
LITERATU	JRE REF	ERENCE	S:				

TABLE XVIII. THIACYCLOPROPANES

No. 1 Thiacyclopropane STRUCTURAL FORMULA NAME (Ethylene sulfide) CH<sub>2</sub> H<sub>2</sub>C Molecular C2H4S Mole Ref. Molecular % Pur. Weight 60,118 Formula Ref. Ref. Ref. -109. 2 F, P. °C dt/dP f to F.P. 100% °C/mm 25°C <u>•K</u> g 0.09635 5 B. P. °C h BP 0.0395 2 760 mm 54.93 2 0.0350 5 4.8 t, f to 100 **4** 5 -17.39 g' <u>°к</u> 0.5559 5 30 30 mm 5 10 -34.25 h١ ∆Hm cal/g -62,12 5 m to ΔHv cal/g Pressure n ۰ĸ 25°C 120.81 249.36 884.77 mm 25°C 5 ٥ 30 mm 129.71 5 te BP 113.50 5 Density g/ml 20°C m to 112.48 te te (d, e) n' ۰ĸ 1.013 2 112.46 5 ٥' 1.007  $d_4^t$ 25 AHv/T 20, 32 5 30 1.001 4 Surface tension 1.0371 d -17 to 125,81 5 4 a dynes/cm, 20°C <u>•c</u> \_59\_ 0.2242 ь -0.02117 4 30 31.92 ď٠ to 30.34 40 5 Ref. Index e' °C 20°C 1,490 [P] Parachor d<sub>c</sub> g/ml 0.373 25 1.487 2 20°C vc ml/g 5 2.684 30 1.484 4 30 t<sub>c</sub> 287. 5 "C" 40 0.6373 4 5 P<sub>c</sub> mm 57381. Sugd. 5 142.9 MR (Obs.) 17.2 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 16.926 25°C 0.9875 5 (nD-d/2)0.984 2 30 mm 1.0000 Dispersion 2 128 Dielectric 0.9597 ВP Flash Point C 0.9556 A -17 to ŧ, 6.98816 Fire Point 0.265 5 B 1147 °C 1166.2 M. Spec. С AHc kcal/m 229. 5 Ultra V. AHf A\* -17 to 1,20992 5 X-Ray Dif. ΔFf B\*[\_69\_\*C 1091.2 Infrared ĸ Viscosity Solubility in c centistokes Acetone t<sub>k</sub> ∫ to °C Carbon tet. °C Benzene A' to Ether B١ •<u>с</u> n-Heptane B<sub>v</sub> | C' to Ethanol ٠ċ Water A1# Water in B'\* •c (B<sup>V</sup>) to Ac | 147 to 7.42828 5  $(A^{\vee})I$ °C Bc •c 1520.8 cp liq. ۰ĸ Cc 282. 5 Cryos. Aº ٠ĸ cp vap. consts. B° c vap. 1º .C 59.57 5  $T_{R} = 0.75 T$ grams/100 grams solvent 5-Calc. by formula REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data API SOURCE: PURIFICATION: API LITERATURE REFERENCES:

No. 2 NAME 2-Methylthiacyclopropane STRUCTURAL FORMULA 2-Methylthiirane H<sub>2</sub>C CH CH3 Molecular C3H6S Ref. Molecular Mole % Pur. Formula Weight 74,144 Ref. Ref Ref. F.P. C F.P. 100% -91. 2 dt/dP to \*C/mm <u>•K</u> g 25°C 0.1909 5 B. P. \*C h ВP 0.041 760 mm 74.4 2 ſ 0.03463 5 to 100 22,2 4 g' ۰ĸ 30 -0.96 4 30 mm 0.5816 5 10 -18.62 5 þ, AHm cal/g 1 -47.88 5 to ΔHv cal/g Pressure •ĸ 108.81 25°C mm 25°C 113.84 5 o 30 mm 5 113.84 t<sub>e</sub> 941.2 5 99.48 5 BP m 1 to Density g/ml 20°C 98.21 5 te (d, e) •K n' 0.944 2 98.18 5 o' dt4 25 0.939 AHV/T 5 20.55 30 0.934 4 Surface tension d 113.66 5 0.9640 - 1 to 4 dynes/cm. 20°C 28.72 0.1906 \_90 <u>•с</u> ъ -0.03979 4 27.50 26.30 5 30 ď 40 Ref. Index e' 20°C 1.475 2  $\mathbf{n}_{D}$ Parachor [P] d<sub>c</sub> g/ml 25 1.472 2 20°C ml/g 30 1.469 4 fc C 30 40 "C" 0.6642 4 P<sub>c</sub> mm Sugd. 181.9 5 MR (Obs.) 22,1 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 21.544 0.9657 25°C (nD-d/2) 1.003 2 30 mm 1.0000 Dispersion 126. 2 Dielectric BP 0.9602 5 Flash Point °C 0.9545 A -1 to te 7.05348 4 Fire Point 1249.3 M Spec. Ultra V. C 225. AHc kcal/m ΔHf A\* -1 to 1.34217 X-Ray Dif. ΔFf 1170.5 Infrared ĸ Viscosity Viscos., centistokes °C Solubility in Acetone Carbon tet. •c Bensene A' to Ether B١ <u>•c</u> n-Heptane C' В to Ethanol Ã۷¦ •c Water A'\* B'\* Water in (BV) •c to Ac | to (AV) •c Bc •c cp liq. •ĸ Cc Cryos. A\* c<sub>p</sub> vap. •ĸ consts, B° t° .C c, vap. 81,22 5 grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit, 4-Calc. from det. data 5-Calc. by formula SOURCE: API **PURIFICATION:** API LITERATURE REFERENCES:

NAME	2-Ethy	thiacy	clopropane			STRUCTURAL FORMULA				
	2-Ethy		<del></del>			H2C,CH C2H5				
<del>-</del>					一	H20	Ch Cans			
Mole % Pur.	Ref. M	iolecul ormuli	C4H8S	Molecular Weight 88.17(		`s´				
		Ref		1	Ref.			Ref.		
F, P, *C			dt/dP			f to				
F.P. 1007	•		*C/mm		ا ۔ ا	g <u>K</u>				
B. P. *C	105	١.	25°C BP	0.6367 0.04304	5	h				
760 mm 100	105.	5	٠,	0.03406		f' to				
30 10	25.90	5	30 mm	0.6102	5_	g' <u>K</u>				
l i	7.27 -24.06	5	ΔHm cal/g		$\sqcup$	m to		-		
Pressure			ΔHv cal/g 25°C	110.24	5	m to				
mm 25°C	28.55 1022.6	5	30 mm	110.24	5	0		1 1		
Density	1.055.0	+-	BP	93.80 91.89	5	m¹ to				
g/ml 20°0		2	te (d, e)	91.73	5	n'   LK				
d <sub>4</sub> 25	0.922	2	ΔHv/T <sub>e</sub>	20.87	5			$\vdash$		
	0.947	4	d 25 to	115.49	5	Surface tension dynes/cm. 20°C	29.08	5		
ь	-0.0399	4 4	-å-  -115 <del>*</del> 6	0, 2066	5	¥ 30	27.84	5		
Ref. Index		2	e'			Parachor [P]	26.63	5		
D 25	1.470	2	d <sub>c</sub> g/ml	0.385	5	20°C				
30	1.467	4	vc ml/g tc *C	2.598 327.	5	30 40				
"C"	0.6724	4	P <sub>c</sub> mm	43307.	5	Sugd.	220.9	5		
MR (Obs.) MR (Calc.		2	PV/RT			Exp. L.1.%/wt.				
(nD-d/2)	1.009	2	25°C 30 mm	1.0000	5	u. Dispersion				
Dielectric			BP	0.9552	5	Flash Point *C		<del>                                     </del>		
A 25 to		9   5	t t	0.9468 0.265	5	Fire Point				
c	209.	5	AHc kcal/m	<b>†</b>		M. Spec. Ultra V.				
A* 25 to			ΔHſ ΔFſ			X-Ray Dif.				
B*[125 °C	1232.6	5	Viscosity		1	Infrared		┼		
t, to	-		centistokes			Solubility in Acetone				
			η ·c			Carbon tet. Bensene				
A'   5 to			1		1	Ether		1		
B' 1_25 °C	227.	5	B <sup>V</sup> to			n-Heptane Ethanol				
A1# 5 to	1.7230		_A •C			Water				
B'+ 25 °C	1404.3	5	(B <sup>V</sup> )  to			Water in		$\vdash$		
Ac 177 to		9   5	(A <sup>V</sup> )  •C		<u> </u>					
Bc tc Cc	255.	5	c <sub>p</sub> liq. •K							
Cryos, A			c <sub>p</sub> vap. *K							
f .C	115.02	5	c <sub>v</sub> vap.							
$T_{R} = 0.7$			4	1	ــــــــــــــــــــــــــــــــــــــ	grams/100 gran	ms solve	nt		
		, 2-A	PI 3-Lit. 4-	Calc. from de	et. da	ta 5-Calc, by for				
SOURCE:		A	PI							
PURIFICA			PI							
LITERATU	IRE REFER	ENCE	S:							
1										

NAME	2,2-1							
		Dimethy	ylthi	iacyclopropane			STRUCTURAL FORMUL	-A
	2, 2-1	Dimethy	ylthi	iirane			, <b>S</b>	
Mole % Pur.	Ref	Mole Form	culs nuls		Molecular Weight 88.1	70	H <sub>2</sub> CC(CH <sub>3</sub> ) <sub>2</sub>	
			lef.			Ref		Ref
F.P. °C				dt/dP			f to	
F.P. 1007	6			°C/mm 25°C	0.2948	5	8K	
B. P. *C 760 mm	86.	1	2	BP	0.04182	5	h	
100	32.7	9	4	t <sub>o</sub>	0.03458	5	f' to to g'  *K	ł
30 10	9.1		4 5	30 mm	0.5928	5	g'  K_	
1	-36.7		5	ΔHm cal/g	ļ	$\vdash$	m to	+
Pressure	/0.0	. [		ΔHv cal/g 25°C	98.05	5	n  •K	ŀ
mm 25°C	966.9		5	30 mm	101.03	5	<u> </u>	
Density	+		٦	BP	87.26 85.59	5 5	m¹   to	
g/ml 20°0	<b>:</b>	1		t (d, e)	85.85	5	n'   •K	
d <sub>4</sub> 25			1	ΔHv/T <sub>e</sub>	20.56	5		
	+	-+	-	d 0 to	102.67	5	Surface tension dynes/cm. 20°C	
ь	_		$\Box$	<u>-</u> ᇕᆜ ᄵᅳᅚᆢᇶ	0.1792	5	30	
Ref. Index		64	2	•' i •c		$\sqcup$	Parachor [P]	+-
D 25	1.4		2	d g/ml v ml/g			20°C	
30	<b></b>		_	vc ml/g tc °C	ļ		30 40	
"C"			_	P <sub>c</sub> mm	}	1 1	Sugd. 220.9	5
MR (Obs. MR (Calc.		62	5	PV/RT		T	Exp. L.1.%/wt.	
(nD-d/2)				25°C 30 mm	0.9957 1.0000	5 5	u. Dispersion	
Dielectric				BP	0.9537	5	Flash Point *C	+
A 0 t B 200 °			5	t <sub>e</sub> t <sub>c</sub>	0.9469	5	Fire Point	
<u>c</u>	219.		5	AHc kcal/m			M Spec. Ultra V.	
A*  0 to			5	ΔHf Δ <b>F</b> f			X-Ray Dif.	
B* L110 *	<u>C</u> 1195.1		"	Viscosity		$\vdash$	Infrared Solubility in +	
د	_			centistokes 7 °C			Solubility in + Acetone	-
t <sub>k</sub>   t		- 1		η •c			Carbon tet. Bensene	
A'   t			$\neg$				Ether	
B' '	드			B <sup>V</sup>   to		+	n-Heptane Ethanol	
	•	-+	$\dashv$	Av i °C	1		Water	
	c			(B <sup>V</sup> ) to	]		Water in	+
	Ĉ			(A <sup>V</sup> )  •C				
Bc Ltc_	4			c <sub>p</sub> liq. •K				
Cryos. A consts. B				c <sub>p</sub> vap. *K				
t <sub>e</sub> °C	93.8	5	5	c <sub>v</sub> vap.				
							grams/100 grams solve	nt
REFEREN	CES: 1-1	Dow 2			Calc, from de	t. dat	ta 5-Calc, by formula	
SOURCE:	TION		AI					
PURIFICA LITERATU		FR FN/	AI		<del></del>	-		
	AL REI	EKEM	·EG					

No. 1 STRUCTURAL Cyclohexane FORMULA NAME H<sub>2</sub>Ç CH2 Molecular C6H12 ĊH2 Ref. Mole Molecular % Pur. 99. 997 Weight 84,156 2 Ref. Ref. Ref. F.P. °C F.P. 100% 6.554 2 dt/dP f to °C/mm g ١ °K 25°C 0.2272 B. P. °C h BP 0.04376 760 mm 80.738 2 f١ 0.0363 5 to 100 25,543 2 g' •<u>к</u> 30 1.3 4 30 mm 0.6047 4 -17.0 10 4 h' ∆Hm cal/g 7,569 2 1 -47.0 5 300 to -0.1031 m AHv cal/g Pressure 600 °K 0.0015 n 25°C 93.81 2 mm 25°C 97.582 -0.0635 4 0 30 mm 98.12 te 964.9 5 BP 2 85.4 -0.0853 m' 700 to 4 Density te te (d, e) 84.10 5 1000 °K 0.0016 4 n' g/ml 20°C 0.77855 2 84.09 5 ۰' -0.0658 4 25 0.77389  $\mathbf{d_{4}^{t}}$ AHV/T 5 19.55 30 0.76922 4 Surface tension Т 0 98.33 5 0.79720 dynes/cm. 20°C 24, 30 5 0.1602 5 90 <u>•c</u> ь -0.0391 30 23.13 5 đ٠ to 5 40 21.99 Ref. Index e' | nD 20°C 1.42623 [P] Parachor dc g/ml vc ml/g tc °C 0,2718 3 25 20°C 1.42354 2 3,6792 3 30 1.42084 30 4 <sup>t</sup>c 281.0 3 40 "C" 0.7273 4  $P_c$  mm 30835. 3 240.1 5 Sugd. 27.709 MR (Obs.) PV/RT Exp. L.1.%/wt. MR (Calc.) 27.708 0.9917 25°C 4 1.03696 (nD-d/2) 2 30 mm 1.0000 5 Dispersion 96.1 2 Dielectric 2,023 32 BP 0.9643 4 Flash Point C -17.2 31 0.9578 5 t t A -20 to 6.84498 2 Fire Point 0,2767 4 1203, 526 B 1142°C M. Spec. Yes 1 AHc kcal/m 881,67 C 222.863 2 2 Ultra V. - 37.34 2 A# -20 to ΔHf 1.17513 X-Ray Dif. 2 ΔFf 6.37 B\*[\_100 °C 1122.50 1 Infrared Yes ĸ Viscosity Solubility in centistokes Acetone to 20 1,258 2 Carbon tet. œ °C 0. 926 ξī 40 2 Benzene œ 60 0.714 2 to Ether œ 80 0.569 B١ <u>•с</u> n-Heptane 00 B<sup>V</sup> | 0 A<sup>V</sup> | 45 ċ١ 618.24 4 to Ethanol œ 3.99246 °C 4 Water AI\* to Water in B'+ °C (BV) 45 to 579.52 4 Acl 142 to 7.32217  $(A^{V})|90$ Z. 11433 4 °C 1577.42 Bc tc °C c<sub>p</sub> liq. 275.8 4 Cc cp vap.300 K Cryos. A 0.00411 2 0.30396 consts. B° 0.0372 ž 0.42564 2 400 c, vap. te °C 88.89  $T_{\mathbf{R}} = 0.75 \, T_{\mathbf{c}}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula API SOURCE: **PURIFICATION:** API LITERATURE REFERENCES: 3 Young; 3' NFPA 325; 32 NBS Circ. 514

					No. 2			
NAME	Methylcycl	ohex	ane			STRUCTURAL I	FORMULA	
						H <sub>2</sub> C CHC	CH <sub>3</sub> CH <sub>2</sub>	
						H2C C	CH2	
Mole % Pur. 99	Ref. Mo	lecul rmul		Molecular Weight 98.18	,	C Hg		
70 Pur. 77	80   2   70	Ref.		weight 70.10	Ref			Ref.
F. P. *C	-126, 593	2	40/45	T	1.01			
F. P. 100%		٦	dt/dP *C/mm	ļ		f to		
B. P. °C	<b>†</b>	<b>-</b>	25°C BP	0.4479 0.04671	4 2	h .		
760 mm 100	100.934 42.072	2 2	t <sub>e</sub>	0.0368	5	f' to		
30	16.30	4	30 mm	0.6438	4	g'   'K_		
10 1	-3,18 -35,2	5	ΔHm cal/g	16.43	2	h'		
Pressure	-35.2	-	ΔHv cal/g			m   300 to	-0.0905	4
mm 25°C	46.33	4	25°C 30 mm	86. 07 87. 82	2	n _600 •K	0.0015 -0.0 <sub>6</sub> 50	4
t <sub>e</sub>	1034.	5	BP	77.2	2	1 700 00	-	
Density g/ml 20°C	0.74020	,	*• (d a)	75.74	5	m'   700 to n'   1000 °K	-0.0284 0.0015	4
	0.76939 0.76506	2 2	'e (u, e)	75.78	1	o'   =====	-0.0654	4
dt 25 4 30	0.76072	4	ΔHv/T <sub>e</sub>	19. 29	5	Surface tension	<b></b>	
a b	0.78670	4	d 15 to e 115 °C	89.87 0.1255	5	dynes/cm. 20°C	23.81	1
Ref. Index	-0.03856	<del>  </del>	_d, to			30 40	22, 78 21, 76	1
n <sub>D</sub> 20°C		2	<del></del>	0.005		Parachor [P]		_
D 25	1.42058	2	d g/ml vc ml/g	0. 285 3. 509	3	20°C	282.0	4
"C"	1.41803	4	te •C	299.13	3	30 40	282.1 282.2	4
MR (Obs.)	32,503	2	P <sub>c</sub> mm	26083.	3	Sugd.	279.1	5
MR (Calc.		5	PV/RT 25°C	0.0037		Exp. L.1.%/wt.		
(nD-d/2)	1.03843	2	30 mm	0.9927 1.0000	4 5	u. Dispersion	97.8	2
Dielectric	2.02	31	BP	0.9719	4 5	Flash Point °C	-1.0	5
A 10 to B <u>155</u> °C		2	te t <sub>c</sub>	0.9641 0.252	4	Fire Point		
c	221.630	2	AHc kcal/m	1025.95	2	M Spec.	Yes	1
A* 15 to	1.18499	5	ΔHſ	-45. 45 4. 86	2 2	Ultra V. X-Ray Dif.		
B* ∟130 °C	1183.08	5	ΔFf	4, 80	-	Infrared	Yes	1
c			Viscosity centistokes			Solubility in +		
tk to			7 20 °C	0.954	2 2	Acetone Carbon tet.	80 80	
A' to		<u> </u>	40 60	0.750 0.608	2	Bensene	<b>00</b>	
B¹			80	0.50	2	Ether n-Heptane	80 80	
C'			B <sup>V</sup>   -30 to A <sup>V</sup>   30 °C	489.49	4	Ethanol	<b>60</b>	
A'* to B'* *C				₹. 30973	4	Water Water in		
Ac   155 to		4		479.97	4			
Bc tc *C	1673.1	4	(A <sup>V</sup> ) <sub>  85 °C</sub>	₹. 34257	4	1		
Ce —	277.	4	c <sub>p</sub> liq. •K					
Cryos, A° consts, B°	0.03779 0.00 <b>3</b> 2	2 2	c <sub>p</sub> vap.300°K	0.33112				
te °C	112,24	5	400 c, vap.	0.45171	2			
	<u> </u>		I. •	L	L	H + /: 22	لــــــا	L
T <sub>R</sub> = 0.7		2 - 41	OT 3-144 4 C	ala francis		grams/100 granta 5-Calc. by form		
SOURCE:		AP	- J-Mt, 4-C	aic. irom det	. Q&	ua 3-Caic. by for	nuia	
PURIFICA:	TION:	AP	<del></del>					
			5: 3 Young; 3'	NRS Ci- E1	4			
- LERRIU	ne refere	NO EX	o; J roung; 3'	MBS CIF. 51	•			

NAME	Ethylcyclol	exan				STRUCTURAL FORMULA				
NAME						SIRUCIURAL	CAME	^		
<u> </u>					_	HZÇ CH	ÇH2			
Mole	Ref. Mo	ecul	,	Molecular		HaĊ	.ĊH2	ł		
% Pur. 99.	9 2 For	mula		Veight 112,20	8	Hz C				
	<del></del>	Ref.		T T	Ref.			Ref.		
F, P, *C	-111, 323	2	dt/dP							
F.P. 100%		1	°C/mm			f to to				
B. P. *C			25°C	1.4219	5	h i	1	1 1		
760 mm	131.783	2	BP	0.04969 0.0368	2 5	<del>-</del>		$\vdash$		
100	69.044	2	t <sub>e</sub>		1 1	f' to g' <u>K</u>	İ			
30 10	41.49 20.5	4 5	30 mm	0.6888	4	h'				
i	-14.4	5	ΔHm cal/g	17.735	2		-0.0792	4		
Pressure			ΔHv cal/g	0( 22	ا ۔ ا	m   300 to		4		
mm 25°C	12.83	5	25°C 30 mm	86.32 84.87	5	0	-0.0652	4		
t <sub>e</sub>	1117.	5	BP	73.9	2	m¹ 700 to	0.01/0	+		
Density			t <sub>e</sub> .	72.05	5	n' 1000 *K	0.0015	4 4		
g/ml 20°C	0.78792 0.78390	2 2	te (d, e)	72.06	5	0'	-0.0653			
dt 25 4 30	0.77988	4	AHV/Te	19.24	5	Surface tension	<u> </u>	$\vdash$		
	0.80399	4	d 40 to	89.91	5	dynes/cm. 20°C	24.89	5		
ь	-0.038	4	e 145 °C d' 10 to	0.1215 88.52	5	¥ 30	23.88	5		
Ref. Index			e'   40 °C	0.088	5	40	22.90	5		
n <sub>D</sub> 20°C	1.43304	2	d <sub>c</sub> g/ml	0.287	5	Parachor [P]				
30	1.43073	2 4	l v ml/g	3.484	5	20°C 30				
"C"	0,7295	4	15°C	321.3	5	40				
		2	P <sub>c</sub> mm	20883.	5	Sugd	318.1	5		
MR (Obs.) MR (Calc.		5	PV/RT			Exp. L.1.%/wt.				
(nD-d/2)	1.03908	2	25°C 30 mm	1.0000	5	u. Dispersion	97.4	2		
Dielectric	2.054	5	BP	0.9656	4		<del></del>	-		
A 40 to	6.87041	2	t <sub>e</sub>	0.9552	5	Flash Point *C Fire Point	22.0	5		
B 170 °C	1384.036	2	L'C	0.244	5	M. Spec.	<del> </del>	┼─		
С	215, 128	2	ΔHc kcal/m ΔHf	1173.74 -50.72	2 2	Ultra V.				
A# 40 to		4	ΔFf	6.96	2	X-Ray Dif.		1		
B*[155°C	1291.0	*	Viscosity			Infrared	ļ	↓—		
c	_		centistokes			Solubility in * Acetone				
t <sub>k</sub> to		1	η 20 °C	1.069	2 2	Carbon tet.	<b>80</b>			
_ X		_	40 60	0.843	2	Benzene	<b>60</b>			
A'   10 to B'   40 °C		5	80	0.59	2	Ether n-Heptane	<b>80</b>			
č,'-'* °	231.3	5	B30 to	500.88	4	Ethanol	<b>80</b>	1		
A** 10 to	1,6049	5	A 1 30 °C	₹. 32067	4	Water		1		
B** 40 °C		5	(B <sup>V</sup> )  30 to	428.32	4	Water in	<del> </del>	┼		
Ac  170 to	7.2853	5	(A <sup>V</sup> )  90 °C	2.55816	4			1		
Bc tc C	1724.55	5	c <sub>p</sub> liq. °K							
Cc	260.2		ll -							
Cryos, A° consts, B°		2 2	c <sub>p</sub> vap 300°K 400	0.34071 0.45986	2 2	l .		1		
te °C	146, 94	5	c, vap.	0.45700	1		1			
			II. •	L	Ц	+	<u> </u>	1		
$T_{R} = 0.7$			DI 3 I : :	C-1- ( :		grams/100 grams/		nt		
	CES: 1-Dow	2-A		Caic. irom de	ec. da	ata 5-Calc. by fo	rinui <b>s</b>			
SOURCE:		AI								
PURIFICA		AF								
LITERATU	IRE REFERE	NCE	S:							
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NAME	1,1-Dimet	hylcy	clohexane			STRUCTURAL	FORMULA	
1 [					$\Box$	HzÇ C	CH3)2	
					$\dashv$	H2C	,CH2	
Mole		lecul		Molecular	ا ۵	`c		
% Pur. 99.	93   2   Fo	rmul	a -8 16   1	Weight 112.2	-	Ha	<del></del>	
	1	Ref.			Ref	<del></del>	1 1	lef.
F.P. °C F.P. 1009	-33, 495	2	dt/dP *C/mm			f to	1 1	
B. P. °C	-	-	25°C	0.8561	5	8   ' <u>*</u> K	1	
760 mm	119.543	2	BP	0.04920 0.0374	2 5		+	
100 30	57.622 30.55	2	t <sub>e</sub> 30 mm	0.6758	4	f' to g'  *K	1 [	
10	10.0	5	ΔHm cal/g	1, 322	2	h'	]	
1	-24.0	5	ΔHr cal/g	1.322	-	m   300 to	-0.0775	4
Pressure mm 25°C	22,68	5	25°C	81.11	5	n   _600 °K	0.0015	4
t <sub>e</sub>	1081.	5	30 mm	80.59	5	0	-0.0640	4
Density		-	BP t_	70.2 68.58	2 5	m¹   700 to		4
g/ml 20°C		2	te te (d, e) AHv/T	68.60	5	n'   11000 °K		4
dt 25	0.77677	2 4	AHv/Te	18.93	5		1	_
	0,79761	4	d   30 to	84.16	5	Surface tension dynes/cm. 20°C	24.01	5
ь	-0.0383	4	d 135 ℃ 15 to	0.1168 83.47	5	<b>3</b> 0	22.99	5
Ref. Index			e' 30 °C	0.0941	5	40	22.00	5
n <sub>D</sub> 20°0	1.42900	2 2	d g/ml v ml/g	0, 237	5	Parachor [P] 20°C	1	
30	1.42413	4	v <sub>c</sub> ml/g t <sub>c</sub> °C	4.22 302.0	5	30	1 1	
"C"	0.7297	4	P <sub>c</sub> mm	19310.	5	40 Sugd	. 318.1	5
MR (Obs.)		2	PV/RT	.,,,,,,	-	Exp. L.1.%/wt.	. 310.1	-
MR (Calc. (nD-d/2)	) 36.944 1.03853	5 2	25°C	1.0000	5	u.	1 1	
Dielectric	+	5	30 mm BP	1.0000 0.9658	5	Dispersion	98.4	2
A   30 to		2	t <sub>e</sub>	0.9561	5	Flash Point *C Fire Point	13.0	5
B [160 °C		2	tc	0, 255	5	M Spec.	+	
C	218.053	2	ΔHc kcal/m	1171.53 -52.31	2	Ultra V.	1 1	
A*  30 to		4	ΔFf	6. 34	2	X-Ray Dif. Infrared	V	,
к — —			Viscosity			Solubility in +	Yes	2
t <sub>k</sub>	-		centistokes 7 °C			Acetone	<b>so</b>	
tx   •0		١.	,			Carbon tet. Benzene	e0	
A' 0 to		5				Ether		
B' L 30 °C	227.3	5	B <sup>V</sup> l to		$\vdash$	n-Heptane Ethanol	<b>60</b>	
A'* 15 to	<del></del>	5	A <sup>V</sup> C			Water	<b>«</b>	
B'* 30 °C		5	(BV) to			Water in	<del>                                     </del>	
Ac   160 to	7.21947	5	(A <sup>V</sup> ) •C					
Bc tc_'C	262.7	5	cp liq. *K					
Cryos. A		2	11 -	0, 33153	2			
consts. B		2	c <sub>p</sub> vap.300°K 400	0.33153	2			
te °C	133, 26	5	c <sub>v</sub> vap.					
$T_R = 0.7$	5 Т <sub>с</sub>					grams/100 gra	ms solvent	_
	CES: 1-Dow	2-AI	PI 3-Lit. 4-C	alc. from det	da	ta 5-Calc. by for	mula	
SOURCE:		AI	PI					
PURIFICA	TION:	AI	PI					
LITERATU	RE REFERE	NCES	3:	····				
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<b>,</b>								
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L								

NAME	1, c	is-2	2 - Di	meth	ylcyclohexane			STRUCTURAL FORMULA  CHCH3  H2C CHCH3				
Mole % Pur. 99.		lef. 2	Mol	leculi muls		Molecular Weight 112,20			H2C C	CH2		
W Ful. //.			FUL		<u> </u>	Weight 112.20			H2	<del></del>	Ref.	
	1			Ref		<del> </del>	Ref.	<u> </u>			Ke.	
F.P. °C F.P. 100%		0. 02	3	2	dt/dP °C/mm		1 1	f	to			
	+			$\vdash$	25°C	1,2820	5	g	' • <u>K</u>			
B. P. *C 760 mm	129	. 72	8	2	BP	0.04988	2	h	1		_	
100		. 82		2	t <sub>e</sub>	0.0371	5	f'	to			
30		. 25		4	30 mm	0.6889	4	g'	<u>*K</u>			
10	-16	. 3		5	ΔHm cal/g	3,5024	2	h'	L			
	1			⊢∸⊣	ΔHv cal/g			m	300 to	-0.0757		
Pressure mm 25°C	14	. 47		5	25°C	84.87	5	n o	600 •K	0.0015		
t <sub>e</sub>	hiii			5	30 mm	83.65 72.9	5 2		L	-0.0644		
Density	<del>                                     </del>				BP	71.10	5	m'	700 to	0.0085		
g/ml 20°C	0	. 79	627	2	t <sub>e</sub> (d, e)	71.11	5	n' o'	10 <u>00 °K</u>	0.0014		
dt 25 4 30		. 79		2	ΔHv/Te	19.09	5			-0.0 <sub>649</sub>	4	
	+	78		4	d 40 to	88.32	5		face tension			
a b		). 81 ). 0 <sub>3</sub>		4 4	_e_  150 °C		5	dyn	es/cm. 20°C	25.96	5	
	1 -0	, 03	800	-	d' 15 to	87.00	5	•	30 40	24.91 23.89	5	
Ref. Index	.	. 43	504	2	e'   40 °C	0.0852	5	<u> </u>		23.07	Ť	
n <sub>D</sub> 20°C	1 -	. 43		2	d <sub>c</sub> g/ml	0.273	5	Par	rachor [P] 20°C			
30		. 43		4	v <sub>c</sub> ml/g t <sub>c</sub> °C	3.670 319.7	5		30			
"C"	0	. 72	65	4	-	20630.	5		40	210 1	5	
MR (Obs.)	36	. 84	2	2	P <sub>c</sub> mm	20030.	,			318.1	3	
MR (Calc.)		. 94		5	PV/RT 25°C	1.0006	5	Exp	p. L.1.%/wt. u.			
(nD-d/2)		. 03		2	30 mm	1.0000	5	Dis	persion	95.9	2	
Dielectric	2	. 06	2	5	BP	0.9661	4		sh Point C	22,	5	
A 40 to		. 84		2	t <sub>e</sub>	0.9557 0.251	5		e Point	22.	1	
B 1.170 °C				2	c			М.	Spec.			
C	+	. 04		2	ΔHc kcal/m ΔHf	1173.64 -50.64	2 2	Ult	ra V.			
A* 40 to B* 155 °C		. 23		4	ΔFf	7.50	2		Ray Dif. rared	<b>v</b>	2	
K	-			•	Viscosity			<b></b>		Yes	-	
·	.				centistokes		1		ubility in <sup>†</sup> cetone	<b>••</b>		
t <sub>k</sub> to	1				η ·c		1		rbon tet.	œ		
t <sub>x</sub> °C A'   15 to	<del>                                     </del>	. 17	040	-					enzene	<b>«</b>		
B' 40 °C			700	5		<b>.</b>	<u> </u>		ther Heptane	90 90		
C'	232			5	B <sup>V</sup> to A <sup>V</sup> C				hanol	<b>80</b>		
A** 15 to	1	. 57	655	5	_A` <u> </u> _ •c	_	1		ater			
B'* 40 °C	1448	3.9		5	(B <sup>V</sup> )  to			W	ater in		₩-	
Acl 170 to		. 25	816	5	(A <sup>V</sup> )  °C	1		]			1	
Bc tc C	1711 - 261			5	c <sub>p</sub> liq. °K			l		1	1	
	+		207	-	1 -		_	ı			1	
Cryos. A° consts. B°		), 00 ), 00		2 2	c vap.300°K	0.33598 0.45540		1				
te .C	+			5	c vap.	",	-	1				
$T_R = 0.7$		. 76		وا		1	1	+		<u></u>	<del> </del>	
		1 5		2 ^	DI 2 1 14 4	Colo ( )			rams/100 gra		11	
	,es:	1 - D				Calc, from de	ει. αε	. 44. 5	-Caic. by for	111412		
SOURCE:				API								
PURIFICAT				API		<del></del>						
LITERATU	RE R	EF	ERE	NCE!	5:							
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							No. 6			
NAME	1, trans-2-	Dime	thylcyclohexane		- [	STRUCTURAL FORMULA				
						H2C CH	CH3			
·										
Mole	Ref. Mo	lecul		Molecular		HzC_ <sub>C</sub> _	CH2			
% Pur. 99.9	2 2 Fo	rmul	8 <sup>n</sup> 16	Weight 112.2	08	Hg.				
		Ref.	L		Ref			Ref.		
F.P. *C	-88.194	2	dt/dP			f to				
F.P. 100%			°C/mm		_	g ' <u>*</u> K_				
B. P. *C			25°C BP	0.990 0.04951	5 2	h .				
760 mm 100	123.419 61.005	2 2	t	0.0374	5	f' to				
30	33,66	4	30 mm	0.6833	4	g'   '*K_				
10 1	12.9 -22.0	5	ΔHm cal/g	22, 342	2	h'				
Pressure	-22.0	-	ΔHv cal/g			m   300 to	-0.0917	4		
mm 25°C	19.40	5	25°C	81.96	5	n _600 •K	0.0016 -0.0658	4		
te	1092.	5	30 mm BP	75.93 71.1	5 2					
Density	0.77/01		to (d.s)	69.45	5	m'   700 to n'   1000 °K	0.0185 0.0014	4		
g/ml 20°C	0.77601 0.77204	2 2	] *e ('a', a'	69.48	5	0' 1200	-0.0649	4		
dt 25 4 30	0.76806	4	ΔHv/T <sub>e</sub>	18.97	5	Surface tension	-			
	0.79188	4	d   35 to	85.19 0.11 <b>42</b>	5	dynes/cm. 20°C	23.41	5		
ь	-0.0378	4	10-E	83.71	5	30	22.46	5		
Ref. Index n <sub>D</sub> 20°C	1.42695	2	e'   35 °C	0.070	5	40	21.53	5		
<sup>n</sup> D 20°C	1.42470	2	d <sub>c</sub> g/ml	0.242	5	Parachor [P] 20°C				
30	1.42229	4	tc *C	4.13 307.5	5	30				
"C"	0.7309	4	P <sub>c</sub> mm	19616.	5	40 Sugd	318.1	5		
MR (Obs.)	37.121	2	PV/RT		-	Exp. L.1.%/wt.	310.1	-		
MR (Calc.) (aD-d/2)	36.944 1.03895	5 2	25°C	1.0000	5	u.				
Dielectric	2.036	5	30 mm BP	1.0000 0.9652	5 4	Dispersion	97.9	2		
A 35 to	6,83722	2	te	0.9553	5	Flash Point °C Fire Point	17.	5		
B (160 °C	1356.100	2	t <sub>c</sub>	0.251	5			┝		
С	219.342	2	ΔHc kcal/m ΔHf	1171.77 -52.19	2 2	M Spec. Ultra V.				
A* 35 to B* 150 °C	1.23855 1263.29	4	ΔFÍ	6.06	2	X-Ray Dif.				
K L = =	1203.27	1	Viscosity			Infrared Solubility in +	Yes	2		
·			centistokes	1		Solubility in + Acetone	<b>∞</b>	ŀ		
			7			Carbon tet.	80	ŀ		
A' 0 to	7,17491	5			1	Bensene Ether	<b>8</b> 0	l		
B' ∟ 35 °C	1532.4	5	B <sup>V</sup>   to		├	n-Heptane	80			
C1	235, 3	5	B to			Ethanol Water	∞	1		
A'* 15 to B'* 35 °C	1.56941 1431.86	5	75v. — — —			Water in				
Ac   160 to	7 25729	5	1		]					
Bc t C	1695.7	5			<del> </del>	1				
Cc	264.5	5	c <sub>p</sub> liq. •K					l		
Cryos, A° consts, B°	0. 03664 0. 00336	2 2	c <sub>p</sub> vap.300°K 400	0.34133 0.46253	2 2			l		
t, °C	137, 62	5	c, vap.	0.40253	'			l		
$T_{R} = 0.75$				L	L	II +	لـــــــا	<u> </u>		
REFERENC		2-AF	PI 3-Lit. 4-C	ala from de	- د	grams/100 gran		<u> </u>		
SOURCE:		AP		alc. from de	. aa	ta 5-Calc, by for	muia			
PURIFICAT:	ION:	AF								
	E REFERE									
	refert	4C E-2	);							
L				<del></del>						

No. 7 1, cis-3-Dimethylcyclohexane STRUCTURAL FORMULA NAME .СҢСН₃ СҢ2 H<sub>2</sub>Ç снон3 H<sub>2</sub>C Molecular Mole Ref. Molecular CH2 C8H16 % Pur. 99.91 2 Formula Weight 112, 208 Ref Ref. Ref. F.P. °C F.P. 100% -75.573 2 dt/dP to °C/mm •K g 25°C 0.8928 B. P. \*C h BP 0.04880 2 760 mm 120.088 2 ſ١ 0.0371 5 100 58, 547 2 g' <u>•к</u> 30 4 30 mm 0.6741 31.57 4 10 5 11.1 h' ∆Hm cal/g 23.047 2 1 -23. 5 -0.0660 300 to m ΔHv cal/g 0.0015 Pressure 600 °K n 25°C 81.91 5 -0.0640 mm 25°C 21.50 o 4 30 mm 81.34 70.90 5 1082. 5 t<sub>e</sub> BP 2 700 to -0,0207 m' Density te (d, e) 69.28 5 0.0015 n' 1000 •K g/ml 20°C 0.76603 2 69.29 5 01 -0.0653 4 0.76196 2 dt4 AHv/T\_ 5 19.10 30 0.75788 4 Surface tension d 30 to 85.07 5 0.78230 -0.0<sub>3</sub>81 dynes/cm. 20°C 22.23 1135 <u>•c</u> 0.1180 5 ь 30 21.29 20.38 a' 15 e' | 30 to 83.83 5 40 Ref. Index •c 0.0787 5 20°C [P] 20°C  $n_D$ 1.42294 Parachor dcg/ml vcml/g tc°C 0.239 5 25 1.42063 2 4.188 30 1.41822 30 t<sub>c</sub> 301. 5 40 "C" 0.7339 4  $P_c$  mm 5 318.1 5 19427. Sugd. MR (Obs.) 37.296 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 36.944 25°C 1.0000 u. (nD-d/2) 1.03993 2 30 mm 1.0000 Dispersion 99.1 2 Dielectric 5 BP 2.025 0.9651 4 5 Flash Point C 15. 0.9554 A 32 to 6.84293 2 Fire Point 0.255 5 B \_\_\_60°C 1340.658 M. Spec. AHc kcal/m C 1170.63 218, 281 2 Ultra V. ΔHf -53.30 2 A+ 32 to 1.24982 5 X-Ray Dif. ΔFf 5.02 B\*[\_145 °C 2 1249.65 Infra red Yes ĸ Viscosity Solubility in centistokes Acetone to •c Carbon tet. •c ليا Benzene 80 0 to 7.18098 Ether 00 B١ 32 °C 1514.9 n-Heptane B<sup>V</sup> | œ c' 234.0 5 to Ethanol •с Water AI+ 15 to 1.57896 Water in (B<sup>V</sup>) B'\* 32 °C 1415.8 to Ac | 160 to 7,2598 (A<sup>V</sup>)| °C Bc 1671.9 ւ<sub>շ</sub> •c c<sub>p</sub> liq. 5 262.1 Cc Cryos. Aº 0.03333 2 cp vap.300K 0.33777 consts. B° 0.00345 400 0.45630 2 c<sub>v</sub> vap. t, •C 133,70  $T_R = 0.75 T_C$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det. data 5-Calc. by formula API SOURCE: PURIFICATION: API LITERATURE REFERENCES:

No. 8 STRUCTURAL FORMULA NAME 1, trans-3-Dimethylcyclohexane сн сн з Molecular C8H16 HgĊ Molecular Mole Ref. CH2 Weight 112.208 % Pur Formula Ref. Ref Ref. -90,108 F, P. \*C F, P. 100% 2 dt/dP f to °C/mm g <u>•K</u> 25°C 1.0670 B, P. °C h ВP 0.04910 2 760 mm 124.450 2 0.0370 f 5 100 to 62.549 2 g' °K 30 35.42 4 30 mm 0.6778 5 10 15.0 h' AHm cal/g -19.5 5 300 to -0.0632 ΔHv cal/g m Pressure \_600 •K 0.0015 n 83.86 25°C 5 mm 25°C 17.60 -0.0640 o 4 30 mm 82.96 5 1095. 5 te BP 72.1 2 700 to -0.0198 m Density 70.37 5 te te (d, e) 11000 °K 0.0014 g/ml 20°C 'n 0.78472 2 70.37 -0.0653 01 4 0.78055 25 30 2  $\mathbf{d_4^t}$ AHV/T 5 19.17 0.77637 4 Surface tension 87.28 5 35 140 to to 0.80139 -0.0<sub>3</sub>829 a b 4 dynes/cm. 20°C 24.48 5 0.1220 5 30 23.45 22.45 5 20 86.03 to 40 5 e¹ 0.0867 Ref. Index 35 °C 5 20°C 1.43085 2 (P)  $\mathbf{n}_{\mathbf{D}}$ Parachor d<sub>c</sub> g/ml 0.246 5 25 1.42843 v ml/g 20°C 4.07 30 1.42602 4 30 309.5 5 40 "C" 0.7290 4 P<sub>c</sub> mm 20187. 5 Sugd. 318.1 5 MR (Obs.) 37,002 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 36.944 1.0000 25°C 5 5 (nD-d/2) 1.03849 30 mm 1.0000 Dispersion 97.1 2 Dielectric 5 0.9656 2.047 BP 5 Flash Point °C 0.9556 5 6.83866 A 35 to 2 Fire Point 0.254 5 t<sub>c</sub> B 1165 °C 1345.859 2 M Spec. 1172.59 С 215.598 2 AHc kcal/m 2 Ultra V ΔHſ -51.57 A\* | 35 to 1.24195 5 X-Ray Dif. 6.44 ΔFf 2 1254.9 Infrared Viscosity Viscour, centistokes °C Solubility in c Acetone tō Carbon tet •c Benzene 15 to 7,17644 Ether B' \_ 35 °C 1520.8 5 n-Heptane  $\mathbf{B}^{\widetilde{\mathbf{v}}}$ C' 231.4 5 to Ethanol ÃV i A'\* •c Water 20 to 35 °C 1.57507 5 Water in B'\* (BV) 1422.8 5 to Ac | 165 to 7.25259 (AV) 5 °C •c Bc \_tc\_\*C 1678.3 5 liq. ۰ĸ c<sub>p</sub> Cc 259.9 Cryos. A\* c<sub>p</sub> vap.300°K 0.0354 2 0.33777 2 consts. B° 0.0031 0.45540 c, vap. te °C 138.65 5  $T_{R} = 0.75 T_{c}$ grams/100 grams solvent REFERENCES: 1-Dow 4-Calc. from det. data 5-Calc. by formula 2-API 3-Lit. SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

NAME		l,cis-	4 - Di	meth	ylcyclohexane			STRUCTURAL FORMULA				
									H <sub>2</sub> C CH(	CH <sub>3</sub> CH <sub>2</sub>		
		T							- 1	CH <sub>2</sub>		
Mole	04	Ref.	Mol	ecul	C8H16	Molecular	ا ہ		H <sub>2</sub> C CH	CH <sub>3</sub>		
% Pur. 99.	74	<u> 2</u>	For	_	0 10	Weight 112.20		,	·		-	
	_			Ref.		<u> </u>	Ref.	<u> </u>			Ref.	
F. P. °C		-87.43	16	2	dt/dP		1 1	f	to			
F.P. 100%	4				*C/mm 25*C	1.0533	5	g	'• <u>K</u>			
B. P. *C	1				BP	0.04921	2	h			<u></u>	
760 mm 100		1 <b>24</b> . 32 62. 28		2	t <sub>e</sub>	0.0371	5	f'	to			
30	1	35.10		4	30 mm	0.6792	4	g'	' <u>°K</u>			
10	1	14.4		5	ΔHm cal/g	19,820	2	h'				
11	+	-20.0	-	5	ΔHv cal/g			m	300 to	-0.0632		
Pressure mm 25°C	1	17.01		5	25°C	83.38	5	n	_ 600 •K	0.0015		
t <sub>e</sub>	$  _{1}$	17.93 095.	•	5	30 mm	82.62	5			-0.0640	4	
Density	+			Ť	BP	71.9 70.19	2 5	m'	700 to	-0.0198	4	
g/ml 20°C	;	0.78	285	2	te te (d, e)	70.19	5	n' o'	10 <u>00 •</u> K	0.0014		
at 25		0.77		2	AHv/Te	19.13	5			-0.0 <sub>6</sub> 54	4	
4 30	4	0,77		4	d 35 to	86,83	4	Sur	face tension			
a b	1	0.79		4	e   140 °C		4	gyn	es/cm. 20°C	24.25	5	
	+	-0.0	,03	1	d' 10 to	85, 26	4	•	30 40	23, 23 22, 24	5	
n <sub>n</sub> 20°C		1.42	966	2	e'   35 °C	0.0752	4	Pay	achor [P]		1	
<sup>n</sup> D 25		1.42		2	d <sub>c</sub> g/ml	0.244	5		20°C			
30	$\perp$	1.42	482	4	vc ml/g tc °C	4.10 309.	5	ŀ	30			
"C"		0.72	89	4	P <sub>c</sub> mm	20030.	5		40 Sugd.	318.1	5	
MR (Obs.)		37.00		2	PV/RT	1	H	Evr	L. 1. %/wt.		<u> </u>	
MR (Calc. (nD-d/2)	η.	36.94 1.03		5 2	25°C	1.0000	5	,	u.			
	+	2.04		5	30 mm	1.0000	5	Dis	persion	97.1	2	
Dielectric	+				BP te	0.9658 0.9558	5		sh Point C	16.0	5	
A 35 to B 165 °C	1	6.83 347.79		2	te	0.254	5		e Point		_	
c		216.36		2	ΔHc kcal/m	1172.57	2		Spec. ra V.		l	
A* 35 to		1.23	936	4	ΔHf ΔFf	-51.55 6.85	2 2		Ray Dif.			
B*[150°C	- 1	256. 32	2	4	Viscosity	0.05	ļ <u> </u>	Infi	rared	Yes	2	
c					centistokes				ubility in +			
t <sub>k</sub> Tto					η •c				etone rbon tet.	<b>80</b>	1	
اجُ ا				<u></u>					nzene	<b>80</b>		
A'  0 to B'  35 °C		7.25	554	5					her	oc		
B' 1_ 35 °C		566.5 236.		5	B <sup>V</sup> to A <sup>V</sup> C				Heptane hanol	e0 e0	1	
A** 15 to	+-	1.64	1530	5	Ā <sup>V</sup> I °C			w.	ater	~		
B'+ 35 °C		464.5		5	(B <sup>V</sup> )  to	7		W	ater in		<u> </u>	
Ac  165 to	T	7, 25	22	5	(A <sup>V</sup> )  °C			1		1		
Bc tc °C	1	681.8		5	c <sub>p</sub> liq. °K	1		1			1	
		260.8		5			_	1				
Cryos. A' consts. B'		0.03 0.00		2 2	c vap.300°K	0.33777 0.45540				[		
t <sub>e</sub> °C	-	138.55		5	c <sub>v</sub> vap.		1			1		
$T_R = 0.7$	_1_			<u> </u>	<u> </u>	1		+-	rams/100 gra	ma solver		
			Dow .	2 - A	PI 3-Lit. 4-	Calc. from de	t. da				<del></del>	
SCURCE:				AI					,			
PURIFICA	TIO	N·		AI						··. · · · · · · · · · · · · · · · · · ·		
LITERATU			ERF									
I												

No. 10 STRUCTURAL FORMULA NAME l, trans-4-Dimethylcyclohexane CHCH3 ЬНe Molecular Molecular Mole Ref. CHCH C8H16 Weight 112,208 % Pur Formula Ref Ref Ref. F.P. °C F.P. 100% -36.962 2 dt/dP to \*C/mm g •ĸ . 5 25°C 0.8929 B. P. \*C h ВP 0.04903 2 760 mm 119.351 2 0.0373 5 ſ to 100 2 57.6 g' °K 30.54 30 4 30 mm 0.6753 4 5 10 10.0 h' 24. 285 2 ∆Hm cal/g -24.2 5 300 to -0.0891 AHv cal/g m Pressure 600 °K 0.0016 n 25°C 5 81.24 mm 25°C 22.69 5 -0.0653 ٥ 4 30 mm 80.65 5 1081. 5 ŧ, BP 70.4 2 Density g/ml 20°C 700 to 0.0123 m 1 5 68.80 te (d, e) 1000 °K 0.0014 'n 0.76255 5 2 68.82 -0.0649 ۰, 4 25 ď4 0.75835 2 5 AHV/T 19.00 30 0.75414 4 Surface tension 30 84.17 5 to 0.77934 -0.0<sub>3</sub>83 dynes/cm. 20°C 21.83 ١ 135 •c 0.1154 5 . h 4 30 5 20.87 ð٠ 83.93 ίō to 5 1 40 19.94 5 • 0.1076 Ref. Index 30 5 1.42090  $\mathbf{n}_{\mathbf{D}}$ 20°C 2 (P) d g/ml vc ml/g tc °C Parachor 0.235 5 25 1.41853 20°C 5 4.257 30 1.41600 4 30 299. 5 0.7338 40 "C" 4 P<sub>c</sub>\_mm 18900. 5 318.1 5 Sugd. MR (Obs.) 37.308 2 PV/RT Exp. L. 1. %/wt. MR (Calc.) 5 36.944 1.0000 25°C 5 (nD-d/2) 1.03963 2 30 mm 1,0000 5 Dispersion 97.1 2 Dielectric 2.019 5 BP 0.9663 Flash Point °C 12. 5 0.9568 5 6.82180 30 to 2 Fire Point 0.253 5 tc B 1332.613 2 M Spec. Ultra V. c 218.791 2 AHc kcal/m 1170.67 2 ΔHf 2 A\*| 30 to -53.18 1.22667 4 X-Ray Dif. **AF**f 5.50 2 B+ 145 ℃ 1240.9 1 Infrared Yes ĸ Viscosity Solubility in c centistokes Acetone to Carbon tet œ •c Benzene œ 10 to 7.1689 Ether œ B١ \_ <u>30 °C</u> 1511.4 n-Heptane 00  $\mathbf{B}^{\overline{\mathbf{v}}}$ C 235. 5 to Ethanol œ ÃV i A<sup>1</sup>\* •c Water 15 to 1.5652 5 (BV) Water in B'\* 30 °C 1411.5 5 to Ac | 155 to 7.23940 5 (A<sup>V</sup>)<sub>1</sub> °C Bc \_ tc\_C 1663.83 cp liq. ۰ĸ Cc 262.8 Cryos. A. 0.02658 c<sub>p</sub> vap.300°K 2 0.33866 consts. B° 0.00296 400 0.45986 c, vap. t, °C 133.02 5  $T_{R} = 0.75 T_{C}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 4-Calc. from det. data 5-Calc. by formula 3-Lit. API SOURCE: PURIFICATION: API LITERATURE REFERENCES:

NAME	n-Propyley	clohe	xane			STRUCTURAL FORMULA				
ļI							H <sub>2</sub> C	ÇHz		
Mole	Ref. Me	lecul	аг С <sub>9</sub> Н <sub>18</sub>	Molecular			HZĊ CH	ĊHg		
% Pur.	Fo	rmul	9 <sup>H</sup> 18	Weight 126.2	34		Uni			
		Ref.			Ref.				Ref.	
F. P. °C	-94.900	2	dt/dP			f	to			
F. P. 1009	6		°C/mm	1	_	g	•K			
B. P. *C		1	25°C BP	3.896 0.05200	2	h				
760 mm 100	156, 724	2	t.	0.0370	5	f'	to			
30	90.979	5	30 mm	0,7236	5	g'	• <u>K</u>			
10	40.13	5	ΔHm cal/g	1		h'				
1	4.024	5	<del></del>		}—	m	300 to	-0.0611	4	
Pressure		1.	ΔHv cal/g 25°C	84.60	5	n i	_600 <b>_•K</b>	0.0015	4	
mm 25°C	4.247 1178,4	5	30 mm	81.50	5	l ° ¦		-0.0651	4	
Desertes	1170.4	+-	BP	70.15	5	m'	700 to	0.0124	4	
Density g/ml 20°0	0.79360	2	t <sub>e</sub> (d, e)	68.02 67.97	5	ו 'מ	1000 •K	0.0014	4	
at 25	0. 78977	2	ΔHv/T	19.16	5	۰' '		-0.0652	4	
4 30	0.78594	4				Suri	ace tension			
	0.8089	4	d 60 to	88.94 0.1199	5		s/cm. 20°C	25.40	5	
ь	-0.03765	4	a - 20 to	86.69	5	8	30	24.43	5	
Ref. Index	-	1_	e'   60 °C	0.0837	5	<u> </u>	40	23.49	5	
<sup>n</sup> D 20°0	1.43705 1.43478		d <sub>c</sub> g/ml	0.2623	5	Par	achor [P] 20°C			
30	1.43250		v <sub>e</sub> mi/g	3.813	5	ŀ	30			
"C"	0.7307	4	_`	346.0	5		40			
MR (Obs.	<del></del>	2	P <sub>c</sub> mm	19098.	5			357.1	5	
MR (Calc.		5	PV/RT		_	Exp	. L.1.%/wt.			
(nD-d/2)	1.04025		25°C 30 mm	1.0000	5	Dia	u. persion	97.4	2	
Dielectric	2,065	5	BP	0.9580	5	<u> </u>		77.4	٤.	
A 60 to	6, 89968	4	t.	0.9451	5		sh Point C Point			
B _190°C		4	<sup>t</sup> c	0,238	5	<b></b>	Spec.		$\vdash$	
С	209.0	4	AHc kcal/m	1320.44	2 2		aV.		1	
A* 60 to			ΔHf ΔFf	-56.98 8.22	2	X-R	ay Dif.		ļ	
B*[_185*9	1376.2	5	Viscosity			l	ared		<u> </u>	
c			centistokes				bility in T		1	
t <sub>k</sub> T to			η 20 °C	1.268	2		etone rbon tet.	ec ec		
£ .			40 60	0.976	2 2		nzene			
A'   25 to		5	80	0.66	2		her	• • • • • • • • • • • • • • • • • • •	Ì	
B' _ 60 °C	2 1706.4 230.	5	B <sup>V</sup> -30 to	563.14	4		Heptane hanol	ec ec		
A1# 25 to		5	B <sup>V</sup> -30 to A <sup>V</sup>   30 °C	₹. 18246	4		ter	_	1	
B'* 60 °C		5	(B <sup>V</sup> )  30 to	469.11	4	Wa	ter in		<b> </b>	
Ac   190 to	7, 30759	5	(A <sup>V</sup> )  90 °C	Z. 49136	4					
Bc tc *C	1814.5	5	c liq. *K	7	Ė	1				
Ce	253.5	5	41 -			1		1	1	
Cryos. A			c vap.300°K	0.35109	2				1	
consts. B		+-	- 400	0.46818	2					
t <sub>e</sub> °C	174.92	5	c <sub>v</sub> vap.	1	L	L		L	L	
$T_{\mathbf{R}} = 0.$	75 T <sub>C</sub>					, gr	ams/100 gra	ms solver	nt	
REFEREN	CES: 1-Dow	2-A	PI 3-Lit. 4-	Calc. from de	et. de	ata 5	-Calc. by for	mula		
SOURCE:		A	PI							
PURIFICA	TION:	A	PI							
	JRE REFER	ENCE	S:				n		····	
1										
l										

No. 12 STRUCTURAL FORMULA NAME Isopropylcyclohexane CHCH(CH3)2 H<sub>2</sub>C CH<sub>2</sub> . CH2 Molecular C9H18 H<sub>2</sub>Ċ Molecular Mole Ref. CHE Formula Weight 126, 234 % Pur. Ref. Ref -89.8 3 F, P. dt/dP f to F.P. 100% °C/mm g <u>•K</u> 25°C 3.555 5 B. P. °C h 0.05179 BP 760 mm 154.50 3 0.03726 5 f to 100 ŧ. 89.03 5 g' \_K 30 60.23 5 30 mm 0.72045 5 10 38,28 h' AHm cal/g 1.57 5 to AHv cal/g m Pressure ۰ĸ n 25°C 83.89 mm 25°C 4.694 5 o 30 mm 80.97 5 te 1160,002 BP 69,12 4 Density g/ml 20°C 5 te (d, e) 67.03 n' ٠ĸ 5 0.80232 66.93 3 ۰' 25 d4 0.79840 3 AHv/T 5 19.01 30 0.79448 4 Surface tension ī 60 to 88.54 5 0.81799 -0.0<sub>3</sub>79 26.53 dynes/cm. 20°C <u>170</u> 1 <u>•c</u> 0.1257 5 ъ 30 25.51 5 10 10 10 85, 97 ı 40 24.51 5 0.0829 Ref. Index e' 60 5 20°C 1.44095 [P] n<sub>D</sub> 3 Parachor 0.251 5 d<sub>c</sub> g/ml 25 1.43875 3 20°C 3.98 5 vc ml/g tc °C 30 1.43639 4 30 5 343. 40 "C" 0.7287 4 5 5 P<sub>c</sub> mm 19116. Sugd. 357.1 MR (Obs.) 41.5438 41.562 2 PV/RT Exp. L. 1. %/wt. MR (Calc.) 25°C 1.0000 (nD-d/2) 1.03979 2 u. 30 mm 1.0000 Dispersion Dielectric 0.94997 5 BP Flash Point °C 0.93663 5 te A 60 to Fire Point 6.89690 tç 0.25 5 1461.86 185 °C M Spec. Ultra V C 209.5 4 AHc kcal/m ΔHf A\* | 60 to 1.34872 X-Ray Dif. ΔFf 1372.46 B\* 180 °C Infrared ĸ Viscosity Solubility in centistokes Acetone to Carbon tet. •c 00 Benzene 00 25 to 7.30882 Ether 00 B١ 60 °C 1692,52 n-Heptane œ вv C' 230. 5 to Ethanol 00 •c Water A1# 25 to 1.74105 Water in B'\* 60 °C (BV) 1590.64 to 7.30519 Ac | 185 to 5 (AV) °C Bc tc C 1805.47 cp liq. ۰ĸ Cc 254. Cryos. A. •ĸ c<sub>p</sub> vap. consts, B° c, vap. te °C 171.94  $T_R = 0.75 T_c$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: Lit. **PURIFICATION:** Lit. LITERATURE REFERENCES: 3 Receuil. Trav. Chim., 58, (1939)

NAME	n-Bu	tylcyc	lohe	xane			STRUCTURAL FORMULA				
Mole % Pur.	Ref		lecul		Molecular Weight 140.20	60	H2C CH	CH <sub>9</sub>			
<del></del>		1.0.	Ref.		1	Ref.	1	le.	eſ.		
7.7.46	-74.7	25	2	1. (15	<del></del>	IVer.		T	**		
F.P. *C			-	dt/dP *C/mm			f to	1			
	<u> </u>		$\vdash$	25°C	10.96	5		1			
B. P. °C 760 mm	180.9	47	2	BP	0.05412	2	h	<del> </del>	-		
100	112.3		4	t <sub>e</sub>	0.03734	5	f' to	1			
30	82.0	6	4	30 mm	0.7585	5	g' <u>*</u> K				
10	58.9		5	∆Hm cal/g			h'	ļ			
Pressure	1 20.3	<u> </u>	1	ΔHv cal/g			m to	1			
mm 25°C	1,3	725	5	25 <b>°C</b>	83.77	5	n  •K	-			
t <sub>e</sub>	1222.2		5	30 mm BP	78.58 66.48	5		ļļ	_		
Density				te (d. a)	64.13	5	m' to	1 1			
g/ml 20°		9918	2	te (d, e)	63.96	5	n'   <u>*</u> K	1			
dt 25		9551 9184	2 4	ΔHv/T <sub>e</sub>	18.95	5	<u> </u>	<del> </del>			
		1386	4	d 82 to	88,62	5	Surface tension	1   .	_		
a b	-0.0		4	<u>e 210 °C</u>	0.1224	5	dynes/cm. 20°C		5		
Ref. Inde:			$\vdash$	d'   20 to		5	40		5		
n <sub>D</sub> 20°		4075	2		+	5	Parachor [P]				
25		3855	2	d g/ml	0.259 3.860	5	20°C	1			
30	-	3647	4	vc ml/g tc °C	372.6	5	30 40	1			
"C"	<del></del>	313	4	P <sub>c</sub> mm	18301.	5		. 396.1 5	5		
MR (Obs.			2	PV/RT			Exp. L.1.%/wt.	1			
MR (Calc (nD-d/2)		80 4116	5 2	25°C	1.0000	5	u.	1 1			
Dielectric			<del>  -</del> -	30 mm BP	1.0000 0.9413	5	Dispersion	97.0 2	2		
A 82 to		5572	-	i	0.9253	5	Flash Point C	1			
B  240 °C			4	t <sub>c</sub>	0.24	5	Fire Point	<del> </del>			
c	205.		5	AHc kcal/m	1467.54	2	M. Spec. Ultra V.				
A* 82 to	1.4	4343	5	ΔHf ΔFf	-62.91 9.69	2 2	X-Ray Dif.				
B*[215 °C	1482.6		5		7.07	+-	Infrared				
e e				Viscosity centistokes		1	Solubility in +				
t <sub>k</sub> [ -tc				7 10 °C	1.95	2	Acetone Carbon tet.				
ا چا				30	1.406	2	Benzene				
A'   20 to		9925	5	50 70	1.069 0.863	2 2	Ether				
B' 1_82_*	2 1776.1 223.		5		551.5	4	n-Heptane Ethanol				
A1+ 20 to	<del></del>	7024	5	B <sup>V</sup>   30 to A <sup>V</sup>   80 °C			Water				
B'+ 82 °			5	(B <sup>V</sup> )  to	-		Water in				
Ac 240 to	7.5	8996	5	(A <sup>V</sup> )  °C							
Bc_tc_'	2187.8 285.		5	c <sub>p</sub> liq. °K	<del></del>	<b>†</b>	1				
Cryos. A			<u> </u>	c <sub>p</sub> vap300°K	0.35513	2		1 1			
consts. B				~ 4:00	0.47055	2					
t <sub>e</sub> °C	201.5	3	5	c <sub>v</sub> vap.		L	1	<u> </u>	_		
$T_R = 0.$	80 T <sub>c</sub>						grams/100 gra	ams solvent			
REFEREN	CES: 1-	Dow	2-A	PI 3-Lit. 4	-Calc, from de	t. de	ata 5-Calc. by fo	rmula			
SOURCE:			A	PI							
PURIFICA	TION:		A	PI							
LITERAT	JRE REI	ERE	NCE	S:							
1											
1											
1											
1											

STRUCTURAL FORMULA n-Pentylcyclohexane NAME H2C CHC5H11 Hac CHS Molecular C11H22 Ref. Molecular Mole Weight 154, 286 % Pur Ref. Ref. -57.5 2 dt/dP f to F.P. 100% \*C/mm g <u>•</u>K 1 25°C 27.60 5 B. P. °C h 0.05656 BP 4 760 mm 202.8 2 0.03773 5 ſ to 100 ٤, 131.1 4 g' \_•K 30 99.4 5 30 mm 0.7932 5 10 75.3 'n٠ AHm cal/g 34.9 5 to AHv cal/g m Pressure •ĸ n 81.97 25°C mm 25°C 0.5062 5 ٥ 30 mm 75.16 5 1276.4 5 t<sub>e</sub> BP 63.18 5 to m' Density g/ml 20°C te (d, e) 60.65 5 n' •K 0.8037 5 60.45 ۰, 0.8002 25 2 ď4 ΔHv/T 18.73 5 30 0.7967 4 Surface tension 99 86.68 5 0,8177 4 dynes/cm. 20°C 26.39 ·c 0.1159 5 -0.0370 226 Ъ 4 30 25.48 24.60 5 to. 84.26 20 40 5 Ref. Index e¹ 99 0.0916 20°C [P] 1.4437 2 Parachor  $n_D$ ďc g/ml 0.257 5 25 1.4416 2 20°C vc tc ml/g 3.893 5 30 1.4396 4 30 394. 5 40 "C" 0.7318 4 P<sub>c</sub> mm 16556. 5 Sugd. 435, 1 5 MR (Obs.) 50.96 2 PV/RT Exp. L. 1. %/wt. MR (Calc.) 50.798 5 1.0000 25°C 5 u, (nD-d/2)1.0418 30 mm 1.0000 Dispersion 98. 2 0.9365 Dielectric BP 5 Flash Point °C t. 0.9183 5 99 to 6.96030 Fire Point 0.239 5 t<sub>c</sub> B (260 °C 1647.3 M Spec. C 1614.47 201. 5 AHc kcal/m 2 Ultra V. ΔHf A\* 99 to B\* 236 °C 1.47836 5 X-Ray Dif. ΔFf 1555.9 Infrared ĸ Viscosity Solubility in c centistokes Acetone to 10 °C 2.61 2 Carbon tet. •c 1.779 30 2 Benzene 50 1.311 2 A' | 20 to 7,28882 5 Ether 70 1.034 2 \_99 <u>°C</u> B١ 1850.6 n-Heptane C' 5 714.66 Ethanol 219. to ÃY İ 3.89312 A'\* 20 to B'\* 99 °C 40 °C 4 Water 1.79373 5 Water in (BV) 1749.6 5 40 to 571.69 4 Ac | 260 to 7,62691 5 (AV) 80 •c Z. 34876 4 2319.2 Bc \_tc\_ •c liq. СЪ Сc 287. 5 Cryos. A\* c<sub>p</sub> vap.300°K 0.35849 2 consts, B° 0.47315 400 c, vap. f .C 226.39 5  $T_R = 0.80 T_c$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula API SOURCE: PURIFICATION: API LITERATURE REFERENCES:

Note	NAME	n-Hexylcyc	lohex	ane	$\neg$	STRUCTURAL FORMULA					
Molecular   C12H24	ſ	l-Cyclohex	ylhex	ane			CH C6 H13				
Ref.						2	нес сне				
F. P. 100%   S. P. ° C   The control of the contr			Ref	<del></del>	T T	_	R	ef.			
F. P. 100%   S. P. ° C   The control of the contr	F.P. °C	-43.0	2	dt/dP							
B.P. °C   76.0 mm   149.9   2   2   2   2   2   2   1.00   149.9   3.00   117.07   5   3.0 mm   0.8227   5   5   1.00	F.P. 1009	,					1 1 1 1 1				
100   143.9   4   5   0.03762   5   6   1   10   10   10   10   10   10	B. P. *C						1				
117.07   5   30 mm   0.8227   5   8'   *K							f' to	$\neg$			
10					1	1		-			
Pressure   mm   25°C   0.1720   5   6.0   1331.7   5   8P   61.07   72.86   5   8P   61.07   5   8P   61.07   5   8P   61.07   5   6.0		92.00	5				h'				
The state   The		50.06	5								
Density g/ml 20°C   0.8076   2   te (d, e)   58.38   5   5   0.0041   4   4   25   0.8061   4   4   2   2   25°C   1.0000   5   30   30   22.56   2   25°C   1.0000   5   30   30   2.56   2   25°C   1.0000   5   30   30   2.56   30   30   30   2.56   30   30   30   2.56   30   30   30   30   30   30   30   3		0 1720	5	25°C				- 1			
Density   g/ml 20°C							<b>!</b>	_			
Section   Sect	Density			t_							
A   117 to   1.0424   2   2.5 **C   1.0000   5   1.0000   1.0000   5   1.00000   1.00000   1.00000   1.00000   1.0000   1.00000   1.0000   1.000				e (4, 8)	58.16	5					
a   0.8216   4   c   250 °C   0.1103   5   dynes/cm. 20°C   26.78   5   5   30   22.86   5   40   24.97   5   5   24.97   25°C   412.	d4 30			ΔHv/T <sub>e</sub>	18.76	5	<del></del>	$\dashv$			
Begin{array}{ c c c c c c c c c c c c c c c c c c c	<del></del>		4	d 117 to				5			
Ref. Index np 20°C							<b>3</b> 0   25.86   5	5			
Delectric   Second							40 24.97	5			
1.4430   4   1.4430   4   1.4430   4   1.4430   4   1.4500   5   1.0424   2   1.0424   2   2.5°C   1.0000   5   1.00000   1.0000   1.0000   1.0000   1.0000   1.0000   1.0000   1.0000   1.0000   1.0000   1.0000				d_g/ml	0.255	5		-			
MR (Obs.) 55.60 MR (Calc.) 55.416 (nD-d/2) 1.0424 2  Dielectric				vc ml/g	3.92	5					
MR (Obs.)   55, 60	"C"				l .	1 1	40				
MR (Calc.)			-		15296.	5	<del> </del>	5			
Dielectric   Di		) 55.416			1 0000						
BP	(nD-d/2)	1.0424	2					2			
A 117 to B 275 °C 1735.7 4	Dielectric							_			
C				<b>.</b>							
A* 117 to B* 260 °C 1642.2 5 Viscosity centistokes 7 10 °C 3.40 2 Carbon tet. Benzene Ether n-Heptane Ethanol Water Water in  A* 20 to 7.32035 5 70 1.611 2 Ether n-Heptane Ethanol Water water in  A* 20 to 7.32035 5 8	c 1265			AHc kcal/m	1761.40	2					
B*   260 °C	A* 117 to		-	ΔHf							
Centistokes   To t	B*[ 260 °C		5		<u> </u>	-					
tk					1						
A' 20 to 7.32035 5 70 1.611 2 Ether n-Heptane Ethanol Water Water in  A' 20 to 1.85557 5 B' 117 °C 1839.2 5 (B') 40 to 630.48 4 (A') 80 °C 7.25636 4 Bc t c C 282. 5 Cc 250.44 5 Cc 282. 6 Cc 250.44 5 Cc 282. 6 Cc 250.44 5 Cc 242. 6 Cc 250.44 5 Cc 242. 6 Cc 250.44 5 Cc 242. 6 Cc 250.44 5 Cc 242. 6 Cc 250.44 5 Cc 242. 6 Cc 250.44 5 Cc 242. 6 Cc 250.44 5 Cc 242. 6 Cc 250.44 5 Cc 242. 6 Cc 250.44 5 Cc 242. 6 Cc 250.44 5 Cc 242. 6 Cc 250.44 5 Cc 242. 6 Cc 250.44 5 Cc 242. 6 Cc 250.44 5 Cc 250.44 5 Cc 242. 6 Cc 250.44 5 Cc 242. 6 Cc 250.44 5 Cc 242. 6 Cc 250.44 5 Cc 242. 6 Cc 250.44 5 Cc 25				<b>່າ</b> 10 °C							
A   20 to   1.85557   5   B   11° C   1839.2   5											
C'											
B				B <sup>V</sup> 5 to	769,79	4					
Bi* 117°C   1839.2   5   (BV)   40 to   630.48   4     Water in	A1# 20 to	1.85557	5				Water				
Bc   t_c *C   2412.9   5   c_p liq. *K		1839.2	5	(B <sup>V</sup> )  40 to	630.48	4	Water in				
Cryos, A* consts. B* c vap300*K 0.36123 2 c vap300*K 0.47471 2  te C 250.44 5 c vap.  TR = 0.80 Tc	Ac 275 to	7. 66201		(A <sup>V</sup> )  80 °C	₹. 25636	4	<u> </u>				
Cryos, A° consts. B° C vap300°K 0.36123 2 0.47471 2  t <sub>e</sub> °C 250.44 5 C <sub>v</sub> vap.  T <sub>R</sub> = 0.80 T <sub>c</sub> * grams/100 grams solvent  REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det. data 5-Calc, by formula  SOURCE: API  PURIFICATION: API	C	282.		c <sub>p</sub> liq. *K							
te °C 250.44 5 cv vap.  TR = 0.80 Tc		<del></del>			0.36123	2					
T <sub>R</sub> = 0.80 T <sub>C</sub> grams/100 grams solvent  REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula  SOURCE: API  PURIFICATION: API	consts. B			g -200							
REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det. data 5-Calc. by formula  SOURCE: API  PURIFICATION: API	t <sub>e</sub> °C		5	c <sub>v</sub> vap.							
SOURCE: API PURIFICATION: API	$T_R = 0.$	30 Т <sub>с</sub>					† grams/100 grams solvent				
PURIFICATION: API	REFEREN	CES: 1-Dow			Calc. from de	t. de	ata 5-Calc, by formula				
	SOURCE:				<del></del>						
LITERATURE REFERENCES:	PURIFICA	TION:	A.	PI							
	LITERATU	RE REFERE	NCE	5:							
	I										
	İ										

No. 16 NAME n-Heptylcyclohexane STRUCTURAL FORMULA CH (C7 H15)
H2C CH2
H2C CH2
CH2 1-Cyclohexylheptane Molecular C13H26 Ref. Molecular Mole Weight 182.338 % Pur Ref. Ref Ref. F.P. C F.P. 100% -30.5 2 dt/dP f to °C/mm <u>•</u>K g 25°C 187.78 B. P. \*C h 0.06056 BP 760 mm 244. 2 ſ 0.03783 5 to 100 167. 4 ٤, ۰ĸ 30 133. 5 0.8539 30 mm 5 10 107. 5 h' ΔHm cal/g 5 1 64. -0.0379 300 to m ١ AHv cal/g Pressure 1\_600 °K n 0.0015 4 25°C 80.39 1 mm 25°C 0.06420 5 -0.0652 4 o 30 mm 70.20 5 te 1386.5 5 58.70 5 BP 700 to 0.0689 m' Density g/ml 20°C ١ te (d, e) 55.87 5 5 11000 °K 0.0013 n' 0.8109 2 55.64 -0.0644 ٥' 4  $\mathbf{d_4^t}$ 0.8074 25 2 Δ̈́Hv/T<sub>e</sub> 5 18.63 30 0.8039 4 Surface tension 1 133 83.99 to 5 0.8249 -0.0<sub>3</sub>70 dynes/cm. 20°C 27, 11 1 274 0.1037 . •c 5 Ъ 4 30 26. 19 25. 29 5 to 82.75 5 40 e' 5 Ref. Index 133 0.0943 5  $\mathbf{n}_{\mathbf{D}}$ 20°C 1.4484 [P] dc g/ml vc ml/g tc °C Parachor 0.253 5 25 2 1.4463 20°C 3.95 5 30 1.4443 30 4 430. 5 40 "C" 0.7325 4 Pc mm 13840. 5 Sugd. 513.1 5 MR (Obs.) 60.24 2 PV/RT Exp. L.1. %/wt. MR (Calc.) 60.034 5 25°C 1.0000 5 (nD-d/2) 1.0429 2 30 mm 1,0000 Dispersion 98. 5 2 Dielectric BP 0.9333 5 Flash Point °C 0.9115 5 133 to 7,00437 Fire Point tc 0, 227 5 180Z. B 1325 °C M Spec. С 193. 5 AHc kcal/m 1908.32 2 Ultra V ΔHf A\* | 133 to 1.56661 5 X-Ray Dif. AFf B+ 284 °C 1705.8 Infrared ĸ Viscosity Solubility in c centistokes Acetone to 10 °C 4.35 2.79 2 Carbon tet. •c 30 2 Bensene 1.95 50 A1 20 to 7.30954 Ether 2006.5 70 1.468 2 B' (133 °C n-Heptane Ĉ١ 211. 5 5 to 828.14 4 Ethanol Āv i •c 40 3.71427 Water 1.87344 4 A1# 20 5 to B'+133 •c (B<sup>V</sup>) Water in 1905.6 5 40 683.84 to Ac | 325 to 8.37928 (A<sup>V</sup>)<sub>1</sub> 5 •c 80 Z. 17419 Bc \_tc\_' •с 3507.9 cp liq. •ĸ Cc 398. Cryos. A. cp vap.300°K 0.36361 consts. B\* 0.47659 2 400 c, vap. te °C 5 273.54  $T_R = 0.85 T_c$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

								No. 17			
NAME	n-Octyleye	lohex	ane		j	STRUCTURAL FORMULA					
	l-Cyclohes	yloct	ane			CH CaH <sub>17</sub> H <sub>2</sub> C CH <sub>2</sub>					
Mole % Pur.	Ref. Mo	lecul rmula	Molecular Weight 196.364		H <sub>2</sub> C CH <sub>2</sub>						
		Ref.		Γ	Ref.				Ref.		
F, P, *C	-19.7	2	dt/dP			ſ	to				
F.P. 100%			°C/mm	1		g	K				
B. P. *C			25°C BP	487.90	5	h	ı				
760 mm	264.	2 4	t <sub>e</sub>	0.06273 0.03804	4 5	ſ¹	to				
100 30	184.3 149.	5	90 mm	0.8849	5	g'	• <u>K</u>				
10	122. 77.	5	ΔHm cal/g			h'					
Pressure	<del> </del>	+-	ΔHv cal/g			m	300 to	-0.0322			
mm 25°C	0.02311	5	25°C	79.83	5	n o	600 <b>-</b> K	0.0015 -0.0 <sub>6</sub> 51			
t <sub>e</sub>	1440.7	5	30 mm BP	67.96 56.68	5	<u> </u>	1.700				
Density			t <sub>e</sub>	53.71	5	m' n'	700 to	0.0738 0.0013			
g/ml 20°C	0.8138	2 2	t <sub>e</sub> (d, e)	53.47	5	اه		-0.0643			
d <sub>4</sub> 30	0.8070	4	ΔHv/T <sub>e</sub>	18.51	5		f		-		
	0.8274	4	d 149 to	82.57	5		face tension es/cm, 20°C	27.41	5		
ь	-0.0368	4	d 297 °C to	0.0981 82.22	5	8,	30	26.50	5		
Ref. Index		1 . 1	e'   149 °C	0.0957	5	ļ	40	25.62	5		
n <sub>D</sub> 20°C	1.4503	2 2	d <sub>c</sub> g/ml	0.252	5	Par	achor [P]				
30	1.4462	4	v_mi/g	3.972	5		30				
"C"	0,7328	4	1 _	449.	5	ŀ	40		ا ۔ ا		
MR (Obs.)	64.88	2	P <sub>c</sub> mm	12718.	-			552.1	5		
MR (Calc.)	64.652	5	PV/RT 25°C	1.0000	5	Exp	o. L.1.%/wt. u.		1		
(nD-d/2)	1.0434	2	30 mm	1.0000	5	Dis	persion	98.	2		
Dielectric	<b></b>	1	BP	0.9322	5		sh Point °C				
A 149 to B 340 °C	7.00707 1869.2	4	te tc	0.220	5	Fir	e Point				
c	189.	5	AHc kcal/m	2055.24	2		Spec.				
A* 149 to	1.58770	5	ΔHf ΔFf		ĺ		ra V. Ray Dif.				
B*[307 °C	1770.5	5		<b>!</b>	├	Infi	rared				
c		1	Viscosity centistokes		ł		ubility in +				
t <sub>k</sub> to			<b>ກ</b> 50 ℃	2.34	2		etone arbon tet.				
c .c			70 90	1.72	2	Be	nzene	1			
A'   20 to B'   149 °C	7.30155 2073.6	5	110	1.02	2		her Heptane	1	1		
c,	207.	5	B <sup>V</sup>   40 to A <sup>V</sup>   80 °C	741.46	4		hanol				
A1# 20 to	1.89164	5		Z. 07510	4		ater				
B'* 149 °C	1973.0	5	(B <sup>V</sup> )  80 to	756. 22	4	<del></del>	ater in	<b></b>	├		
Acl 340 to	8.33827 3542.9	5	(A <sup>V</sup> )  120 °C	2.03517	4	Į .					
Bc tc C	388.	5	c <sub>p</sub> liq. *K			Į.					
Cryos, A° consts, B°			c_ vap.300 K	0.36560	2 2						
te °C	296,70	5	c <sub>v</sub> vap.	0.47768	'	ļ					
T <sub>R</sub> = 0.85	1			1	Ь	# g:	rams/100 gra	ms solver	ıt		
	ES: 1-Dow	2-A	PI 3-Lit. 4-	Calc. from de	t. da						
SOURCE:		AP	I								
PURIFICAT	ION:	AP	I								
LITERATU	RE REFERE	NCE	5:								
1											
ı											

No. 18 STRUCTURAL FORMULA NAME n-Nonylcyclohexane HEC CHE 1-Cyclohexylnonane Hac CHS Ref. Molecular Molecular Mole C15H30 % Pur Formula Weight 210.390 Ref. Ref. -10.2 2 dt/dP f to F.P. 100% °C/mm g <u>•</u>K 25°C 1211.62 B. P. °C h ВP 0.06462 760 mm 282. 2 0.03825 5 f to 100 200. 5 ١. g' •ĸ 30 164. 5 30 mm 0.9118 5 10 136. 5 h' AHm cal/g 89. 300 to -0.0242 m AHv cal/g Pressure 600 °K 0.0015 79.35 n 25°C 5 mm 25°C 0.00874 -0.0648 4 a 30 mm 65.86 te 1486.4 5 BP 54.70 5 ⊺ 700 to 0.0644 Density g/ml 20°C te (d, e) 5 51.61 n' 11000 °K 0.0013 5 0.8163 2 51.36 ۰, -0.0645 4 25 0.8129 2 ď4 AHV/T 18.39 5 30 0.8095 4 Surface tension 164 ď 81.26 5 0.8299 4 27.67 dynes/cm. 20°C  $\frac{1}{1} \frac{317}{20}$ <u>•c</u> 0.0942 5 -0.0368 Ъ 4 30 26.76 5 to •C 81.79 40 25.87 5 Ref. Index 0.0974 e' 164 5 20°C 1.4519 [P] n<sub>D</sub> 2 Parachor 0.251 5 dc g/ml 25 1.4499 2 20°C vc ml/g 3.99 30 1.4479 4 30 463. 5 40 "C" 0.7330 4 P<sub>c</sub> mm 11612. 5 Sugd. 591.1 5 MR (Obs.) 69.52 2 PV/RT Exp. L. 1. %/wt. MR (Calc.) (nD-d/2) 69.270 5 1.0000 5 25°C u. 1.0438 2 30 mm 1.0000 Dispersion 98. 2 0.9299 Dielectric BP 5 Flash Point °C te 0.9045 5 1164 to 7,01057 Fire Point 0.212 5 tc 1928.6 1353 °C M Spec. C 185. 5 AHc kcal/m 2202.17 2 Ultra V ΔHſ A\* | 164 to 1.61199 5 X-Ray Dif. B\* 327 °C ΔFſ 1828.8 Infrared ĸ Viscosity Solubility in centistokes Acetone to ا ا ا 50 2.76 2 Carbon tet. •c 70 2.00 2 Bensene 90 1.49 2 A' 20 to 7, 29634 5 Ether 1.15 110 2 <u>1164 °C</u> 2132.9 5 n-Heptane C١ 203. 5 40 775.79 Ethanol 4 A | 80 2.04057 A'\* 20 to B'\* 164 °C \*C 4 Water 1.91204 5 (BV) 80 Water in 2033.2 5 782,81 4 to Ac | 353 to 8.33828 (AV) | 120 5 2.01788 4 •c Bc tc\_' •c 3621.8 liq. C<sub>D</sub> ٠ĸ Cc 384. Cryos. A. c<sub>p</sub> vap300 K 0.36732 2 consts. B° 400 0.47863 c, vap. f .C 317, 45 5  $T_{R} = 0.85 T_{c}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det, data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

		-Dec	vlcvo	lohe	vane				DUCCOUDA!	No. 19			
NAME	n-Decylcyclohexane 1-Cyclohexyldecane								STRUCTURAL FORMULA  CH Cio Hzi				
		-Cyc	lohes	tylde	cane			H <sub>2</sub> Ç ÇH <sub>2</sub>					
Mole % Pur.		Ref.	Mol For	eculi mula	F C <sub>16</sub> H <sub>32</sub>	Molecular Weight 224.41	16	Hac CHa					
				Ref.	<del></del>	l ·	Ref.				Ref.		
F, P, *C		-1.7	26	2	dt/dP			ſ	to				
F.P. 1007					°C/mm	2022 0	١.	g	• <u>K</u>				
B. P. °C	١.				25°C BP	2833.0	5 4	h					
760 mm 1 <b>0</b> 0		99. 15.		2 4	t <sub>e</sub>	0.03843	5	f'	to				
30	1	77.		5	30 mm	0.9389	5	g'	<u>K</u>				
10 1		48. 01.		5	ΔHm cal/g			h'					
Pressure					ΔHv cal/g 25°C	70.50	ا ۔ ا	m n	300 to	-0.0236 0.0015			
mm 25°C	١.,		0354	5	30 mm	78.50 63.73	5	٥	<b>-</b> -	-0.0 <sub>6</sub> 49			
t <sub>e</sub>	15	33.6		5	BP	52.85	5	m'	700 to	0,0849	4		
Density g/ml 20°C	;	0.8	1858	2	te te (d, e)	49.71 49.43	5	n' o'	1 1000 • K	0.0012			
dt 25 4 30	1	0.8	1517	2	AHV/T	18.27	5			-0.0642	4		
	-	0.8	1176	4	d 177 to	79.51	5		face tension	37.00	5		
a b		-0.0		4	3 <u>37_ °C</u>	0.0892	5	gyn	es/cm. 20°C 30	27.90 26.99	5		
Ref. Index					d' 20 to e'   177 °C	80.92 0.0972	5		40	26.09	5		
<sup>n</sup> D 20°C	7		5338	2	d <sub>c</sub> g/ml	0,240	5	Par	achor [P]				
30			5141 4938	2 4	I V_ m1/g	4.17	5		20°C 30				
"C"		0.7		4		477.	5		40 Su ad	620 1	5		
MR (Obs.)		74. 1		2	P <sub>c</sub> mm	10200.	-	F	Sugd.	630.1	-		
MR (Calc. (nD-d/2)	)	73.8	88 4409	5 2	25°C	1.0000	5	EXI	o. L.1.%/wt. u.	1			
Dielectric	+-	1.0	1107	-	30 mm BP	1.0000	5	Dis	persion	97.8	2		
A 177 to	$\rightarrow$	7 0	1282	4	t.	0.9029	5		sh Point *C e Point	1	1		
B 376 °C	_ 19	87.5	1202	4	· tc	0.204	5	<b></b>	Spec.		-		
С		82.		5	ΔHc kcal/m ΔHf	2349.09	2		ra V.		Ì		
A*  177 to B*  347 °C		1.6 85.3	3076	5	ΔFf	ļ			Ray Dif. rared				
к <u></u>	-				Viscosity			ļ	ubility in +		╁		
t, to	-				centistokes り 50 °C	3. 24	2		etone		ì		
tk					70	2.30	2		rbon tet.				
A'   20 to	1		9035	5	90 110	1.69 1.28	2 2		her		1		
B' 177 'C	21	91.8 00.		5		825.4	4		Heptane				
A1# 20 to	_		2825	5	B <sup>V</sup>   40 to A <sup>V</sup>   80 °C	3.95681	4		hanol ater				
B'* 177 °C		91.9		5	(B <sup>V</sup> )  80 to	839.8	4	_ w	ater in		L_		
Acl 376 to			8052	5	(A <sup>V</sup> ) 120 °C	3.91567	4						
Bc tc Cc	26	71.8		5	c <sub>p</sub> liq. *K			1					
Cryos, A	+			H	c_vap300°K	0.36887	2						
consts, B	1				P 400	0.47991	2						
t <sub>e</sub> °C		37.3	<u> </u>	5	c <sub>v</sub> vap.	I	L	٠,	rams/100 gra	me estus	<u> </u>		
		1-1	)ow	2-A	PI 3-Lit. 4-	Calc. from de	t. de						
SOURCE:					PI				3223. <b>2, 101</b>				
PURIFICA	TION	]:			PI								
LITERATU			ERE										
					<del></del>								

No. 20 n-Undecylcyclohexane STRUCTURAL FORMULA NAME H5C, CHC" H52 1-Cyclohexylundecane HEC CHE Molecular C17H34 Ref. Molecular Mole Weight 238,442 % Pur Ref. Ref. Ref. 5.8 2 dt/dP f to F.P. 100% °C/mm g <u>•</u>K 6854.8 5 25°C B. P. °C h 0.06836 4 BP 760 mm 316. 2 5 0.03857 ſ١ <sup>t</sup>e to 100 229. 4 . <u>•</u>K 191. 5 0.9656 5 30 30 mm 5 10 161 h¹ ∆Hm cal/g 112. 5 300 to -0.0198 m AHv cal/g Pressure 600 °K 0.0015 25°C 77.99 5 n 0.00139 mm 25°C -0.0649 4 30 mm 61.89 o 5 1580,7 t<sub>e</sub> 5 BP 51.28 5 700 to 0.0728 m' 4 Density 48.06 5 te (d, e) 11000 °K 0.0013 n' 4 g/ml 20°C 0.8206 5 47.79 -0.0644 ٥' 25 0.8172 2 dt4 AHV/Te 18.18 5 30 0.8138 4 Surface tension 1 191 78,02 5 d 0,8342 28.12 dynes/cm. 20°C 357 20 •c 0.0846 5 ь -0.0368 4 30 27.20 5 ď٠ to 80.42 40 26.30 5 0.0972 Ref. Index ·c e' 191 5 1.4547 [P] 20°C 2  $\mathbf{n}_{\mathbf{D}}$ Parachor d g/ml v ml/g 0.239 5 25 1.4527 2 v ml/g 20°C 5 4.18 30 1.4507 4 30 491. 5 40 "C" 0.7334 4 Pc 5 mm 9427. Sugd. 669.1 5 MR (Obs.) 78.80 2 PV/RT Exp. L.1.%/wt. 5 MR (Calc.) 78.506 25°C 1.0000 5 (nD-d/2)u. 1.0444 2 30 mm 1.0000 5 98. 2 Dispersion Dielectric 0.9288 5 BP Flash Point °C 0.9012 5 t. 191 to 7.01858 Fire Point 5 0.197 2048.2 149 L °C M Spec. 179. 5 C AHc kcal/m 2496,01 2 Ultra V. ΔHf A\* | 191 to B\* | 367 °C 1.65109 5 X-Ray Dif. ΔFf 1943.4 Infrared ĸ Viscosity Solubility in centistokes Acetone 50 3.77 2 t<sub>x</sub> | Carbon tet. •c 70 2 2.63 Benzene 90 1.90 2 7, 28845 A' 20 to Ether 2 110 1.41 B' 191 C 2252.6 5 n-Heptane ВŸ 197. 5 40 867.3 4 to Ethanol AV | 80 3.89286 4 •c Water A\*\* 20 1.94742 5 Water in B'\* 191 **•**C 2152.9 (BV) 80 901.4 4 to Ac| to (A<sup>V</sup>)| 120 •0 3.79695 4 Bc •c liq. c<sub>p</sub> •ĸ Cc Cryos. A. c<sub>p</sub> vap.300°K 0.37019 2 consts. B° 0.48062 400 c, vap. te °C 357, 22 5 grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

									No. 21				
NAME	n-Dodecylcyclohexane  1-Cyclohexyldodecane							STRUCTURAL FORMULA					
	1-Cyc	lohex	yldo	decane			CHC12 H25						
Mole	Ref	Mo	ecul	NT 6	Molecular	ŀ		нес с	Hg				
% Pur.		For	mula	ът С <sub>18</sub> Н <sub>36</sub>	Weight 252.4	68		CH <sub>2</sub>	! 				
			Ref.			Ref.				Ref			
F. P. °C	12.5		2	dt/dP			f	to					
F.P. 100%				*C/mm 25*C	1,5334		g	'• <u>K</u>					
B. P. *C	1		١, ١	BP	0.07003	5 4	h	l		L			
760 mm 100	331.		2 5	t <sub>e</sub>	0.03877	5	f'	to		1			
30	203.		5	30 mm	0.9891	5	g'	' <u>*</u> K		ļ			
10 1	172.		5	ΔHm cal/g			h'	i					
Pressure	+			ΔHv cal/g			m n	300 to	-0.0219 0.0015				
mm 25°C	0.0	3591	5	25°C 30 mm	77.34 60.04	5			-0.0652	4			
t <sub>e</sub>	1619.8		5	BP	49.62	5		1		├			
Density				t <sub>e 4</sub>	46.35	5	m' n'	700 to	0.1010 0.0012				
g/ml 20°C		223 190	2 2	t <sub>e</sub> (d, e)	46.07	5	اه	1 (200	-0.0640				
d <sup>t</sup> 25 4 30		157	4	ΔHv/T <sub>e</sub>	18.06	5		face tension		├			
a .	0.8	355	4	d 203 to e 375 °C	76.48 0.0811	5		es/cm. 20°C	28. 29	5			
ь	-0.0	366	4	e   375 °C   d'   20 to	79.78	5	8	30	27.40	5			
Ref. Index	. 1		١ . ا	e' 203 °C	0.0974	5	<u> </u>	40	26.52	5			
<sup>n</sup> D 20°C		559 539	2	d <sub>c</sub> g/ml	0.239	5	Par	achor [P]		l			
30		523	4	I V_mi/g	4.19	5		30		İ			
"C"	0.7	337	4	tc *C Pc mm	8743.	5		40 Su ad	708.1	5			
MR (Obs.)			2	PV/RT	0143.	-	F		700.1	-			
MR (Calc. (nD-d/2)		24 447	5 2	25°C	1.0000	5	Exi	u.					
Dielectric	1.0	411	-	30 mm	1.0000	5	Dis	persion	98.	2			
	+	1700	$\vdash$	BP te	0.9274 0.8985	5		sh Point °C					
A 203 to B 425 °C		1789	4 4	tc	0.191	5		e Point		ļ			
_c	176.		5	∆Hc kcal/m	2642.93	2		Spec. ra V.		Ì			
A* 203 to		6739	5	ΔHf ΔFf			X-1	Ray Dif.					
B*[ 385 °C	- 1991.3		5	Viscosity	-	$\vdash$		ared		<b>↓</b> _			
c	_			centistokes				ubility in †		ļ			
tk to	]		1 1	η 50 ℃ 70	4.35 2.98	2 2		rbon tet.					
A'   20 to	1 7 7	8135	5	90	2.12	2		nzene					
B' 203 °C	2301.7		5	110	1,56	2		her Heptane					
C'	194.		5	B <sup>V</sup>   40 to A <sup>V</sup>   80 °C	911.1	4	Et	hanol		1			
A'* 20 to		6111	5		3,81962	1		ater ater in		1			
B'* 203 °C	<del></del>		5	(B <sup>V</sup> )  80 to	927.1	4				-			
Acl 425 to Bc t <sub>c</sub> °C	3942.8	1283	5	(A <sup>V</sup> ) 120 °C	3. 77383	4							
C°	399.		5	c <sub>p</sub> liq. *K		ļ l				ł			
Cryos. A*				c_ vap.300°K	0.37141	2							
consts, B°				P 400	0.48165	2							
t <sub>e</sub> °C	374.7	5	5	c <sub>v</sub> vap.			L		l . , .	_			
$T_R = 0.9$	0 T <sub>C</sub>						Ť g:	rams/100 gra	ms solver	ıt			
	CES: 1-	Dow		PI 3-Lit. 4-	Calc. from de	t. da	ta 5	-Calc. by for	mula				
SOURCE:			AF	PI									
PURIFICA'	TION:		AI	PI									
LITERATU	RE REF	ERE	NCES	<b>3</b> :									

No. 22 STRUCTURAL FORMULA NAME n-Tridecylcyclohexane CH CI3 H27 H2C CH2 H2C CH2 1-Cyclohexyltridecane Molecular C19H38 Molecular Mole Ref. Weight 266.494 % Pur. Ref. Ref Ref. F.P. °C 18.5 dt/dP f to °C/mm 25°C <u>.</u>K . 35356. B. P. \*C h 0.07165 BP 4 760 mm 346. 2 0.03890 5 ſ 100 to 255. 5 E' \_K 30 215. 5 30 mm 1.0122 5 10 184. 5 p, AHm cal/g 1 132 5 300 to -0.0161 AHv cal/g m Pressure 600 °K 0.0014 n 25°C 76.98 5 mm 25°C 0.0<sub>3</sub>244 1661.3 -0.0<sub>6</sub>50 ٥ 4 30 mm 58.42 5 5 t. BP 5 48.22 m¹ 700 to 0.0925 4 Density 5 te (d, e) 44.89 0.0012 n' 11000 °K g/ml 20°C 4 0.8239 2 44.62 5 ٥¹ -0.0<sub>6</sub>41 4 25 30  $\mathbf{d_4^t}$ 0.8206 AHV/T 17.97 5 0.8173 Surface tension 215 75,07 5 to 0.8371 a b dynes/cm. 20°C 28.46 5 1 392 1 20 •c 0.0776 . -0.0366 4 30 27.56 5 •C 79.43 5 40 26.68 5 •1 Ref. Index 215 0.0979 5 1.4570 n D 20°C Parachor [P] d<sub>c</sub> g/ml 0.239 5 5 5 25 1.4550 20°C vc ml/g 4.19 30 1.4531 4 30 515. 40 "C" 0.7340 4 P<sub>c</sub> mm 8135. 5 747.1 5 Sugd. MR (Obs.) 88.08 2 Exp. L.1. %/wt. MR (Calc.) 87.742 25°C 30 mm 1.0000 5 (nD-d/2) 1.0450 2 1.0000 5 Dispersion 98. 2 Dielectric 0.9271 BP Flash Point °C 0.8971 5 A 215 to 7.01992 Fire Point 0.185 5 ŧ<sub>c</sub> 2148.2 B <u> 436 °C</u> M Spec. Ultra V C 173. 5 AHc kcal/m 2789,86 2 ΔHf A\* 215 to 1.68318 5 X-Ray Dif. ΔFf B+ \_402 °C 2040.0 Infrared Viscosity Solubility in c centistokes Acetone tō ţ 50 70 4.99 Carbon tet. •c 3, 37 2 Benzene 90 2.36 2 A1 20 to 7,27735 Ether 110 1.71 2 B' (215 °C 2352.4 5 n-Heptane ₽₹ C' 191. 5 40 945.5 4 Ethanol A | 80 \*C 3.77282 4 Water A'\* 20 to 1.97641 5 (B<sup>V</sup>)| 80 B'\* 215 °C Water in 2253.6 5 973.6 4 to Ac | 436 to 8.30585 5 (A<sup>V</sup>)| 120 3. 69224 °C 4 Bc tc C 3999.9 5 cp liq. Cc 395. 5 Cryos. A c<sub>p</sub> vap,300°K 0.37247 2 consts, B° 400 0.48219 c, vap. f .C 392.39 5  $T_R = 0.90 T_c$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 4-Calc, from det, data 3-Lit. 5-Calc, by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

NAME	n-Tetradecylcyclohexane								STRUCTURAL FORMULA				
		1-Cyc	lohex	ryltet	radecane			CH CH Hze					
Mole % Pur.		Ref.	Mol For	eculi mula	C <sub>20</sub> H <sub>40</sub>	Molecular Weight 280,52	20	HeC CHe					
				Ref.			Ref.				Ref.		
F. P. *C	T	24.0		2	dt/dP			ſ	to				
F.P. 100	<b>%</b>				*C/mm			g	•K		i '		
B. P. *C	1				25°C	74925.8	5	h					
760 mm		360.		2	BP	0.07326	4		<del> </del>		-		
100		267.	1	5	t <sub>e</sub>	0.03909	5	f' g'	to				
30 10		226. 19 <b>4</b> .		5	30 mm	1.03530	5_	P.	<u>_</u>		1		
l i		141.		5	∆Hm cal/g						_		
Pressure	$\neg$				ΔHv cal/g		! !	m n	300 to	-0.0112 0.0014			
mm 25°C	;	0.03	110	5	25°C	76.12	5			-0.0 <sub>6</sub> 47			
t <sub>e</sub>	1	698.8		5	30 mm BP	56.74 46.79	5 5		<del> </del>	****	_		
Density	$\top$				t <sub>e</sub> , , ,	43.43	5	m¹		0.0844			
g/ml 20°	c	0. 82	54 <sup>*</sup>	2	t (d, e)	43.17	5	n' o'	[1000 <b>.</b> K	0.0012			
dt 25		0.82	21	2	ΔHv/T <sub>e</sub>	17.86	5		L	-0.0 <sub>6</sub> 43	1		
	+	0.81		-	d 226 to	<del></del>	5		face tension				
a b		0.83 -0.0 <sub>3</sub>		4 4	e   409 °C		5	dyn Y	es/cm. 20°C 30	28.62	5		
	+	-0.03	00	┝╌┤	d'   20 to	78.54	5	•	40	27.72 26.84	5		
Ref. Inde		1.45	79 <sup>‡</sup>	2	e'   226 °C	0.0966	5	Pa-			1		
<sup>n</sup> D 20°	٦,	1.45	59	2	d <sub>c</sub> g/ml	0, 238	5	Pa	rachor [P] 20°C				
30		1.45		4	v_mi/g	4.206	5		30				
"C"	Т	0, 73	40	4		525.	1 1	1	40		ا ۔ ا		
MR (Obs.	5	92.72	ŧ	2	P <sub>c</sub> mm	7509.	5	<u> </u>		786. 1	5		
MR (Calc		92 36	0 .	5	PV/RT 25°C	1 0000	5	Ex	p. L.1.%/wt.	1			
(nD-d/2)		1.04	52₹	2	30 mm	1.0000	5	Di-	u. persion	98.	2		
Dielectric	:				BP	0.9262	5			70.	<u> </u>		
A 226 to	,	7, 02	261	5	t.	0.8952	5		sh Point C e Point		1		
B 445 °	<u>c  </u> 2	2199. 3		5	t c	0.178	5			<del></del>	╁		
C	_	171.		5	ΔHc kcal/m ΔHf	2936.78	2		Spec. ra V.	l	1		
A+1 226 to		1.69	987	5	ΔFf			X-1	Ray Dif.		1		
B*[419*	<u>'</u> ا	2089.1		5	Viscosity	· · · · · · · · · · · · · · · · · · ·	$\vdash$	Inf	rared		<u> </u>		
c	ı				centistokes		'		ubility in +	1			
t <sub>k</sub> [ t					η 50 °C	1	2		cetone arbon tet.		l		
و ایک					70	3.78	2		ensene				
A'   20 to	- 1	7, 27	430	5	90 110	2.61 1,87	2 2	E	her	ļ			
B' 1_226 *		2403.5		5	v				Heptane	1	1		
	+	189.	1.00	5	B' 40 to A' 80 °C	985.1 3.70715	4		thanol ater		1		
A'* 20 to B'* 226 *		1.99 2304.7	109	5	(B <sup>V</sup> )  80 to	-1	4		ater in		]		
Ac  445 to	-	8, 30	924	5		_	4						
Bc tc		407 <b>0.</b> 1	,	5		+	1	1					
Cc	ᅵ	393.		5	c <sub>p</sub> liq. •K	•				1			
Cryos, A					c_ vap.300 K	0.37341	2						
consts. B	•				- 400	0.48268	2				ĺ		
t <sub>e</sub> °C		408.91		5	c <sub>v</sub> vap.						ĺ		
$T_R = 0.0$	90 T	c			for underco	oled liquid		† g	rams/100 gra	ms solver	ıt		
REFEREN	CE	S: 1-E	)ow	2-A	PI 3-Lit. 4	-Calc, from de	t. da	ta 5	-Calc. by for	mula			
SOURCE:				A.	PI								
PURIFICA	TIC	ON:		Al	PI								
LITERAT			ERE	NCES									
1													
l													
I													

n-Pentadecylcyclohexane STRUCTURAL FORMULA NAME H2C CH C15 H31 1-Cyclohexylpentadecane HEC CHE Molecular C21H42 Molecular Mole Ref. Weight 294.546 % Pur Ref. Ref 29.0 dt/dP f to \*C/mm 25\*C F.P. 100% g <u>•</u>K 65462.9 5 B. P. °C h ΒP 0.07460 5 760 mm 373. 2 0.03919 5 f te to 100 278. 5 5 5 g' <u>•</u>K 30 236. 30 mm 1.05452 5 10 204. h' ∆Hm cal/g 150. 5 300 to -0.0133 AHv cal/g m Pressure 600 °K 0.0014 n 25°C 75.90 5 mm 25°C  $0.0_{4}^{48}$ 1733.5 o -0.0650 4 30 mm 55.32 5 te ВP 45, 52 5 m' 700 to 0.1086 Density 42.12 5 te (d, e) n' 1000 °K 0.0012 g/ml 20°C 0.8267 41.86 5 -0.0<sub>6</sub>39 0.8234 01 4 2 25 ď4 AHV/T 5 17.79 30 0.8201 4 Surface tension 1 236 72.22 5 to 0.8399 -0.0<sub>3</sub>66 dynes/cm, 20°C a 28.76 424 •c 0.0716 5 . 30 27.85 5 20 ٠<u>.</u> 78. 33 5 5 1 •1 40 26.97 5 Ref. Index 236 0.0975 1.4588 20°C (P) Parachor  $\mathbf{n}_{D}$ d<sub>c</sub> g/ml 0.228 5 5 1.4568 25 vc ml/g 20°C 4.38 1.4545 4 30 30 533. 5 40 "C" 0.7342 4 P<sub>c</sub> mm 6700. 5 825.1 5 Sugd. MR (Obs.) 97.36**#** 2 PV/RT Exp. L. 1. %/wt. MR (Calc.) 96.978 25°C 1.0000 5 (nD-d/2)1.0454<sup>#</sup> u. 30 mm 1,0000 98. **\*** Dispersion 2 Dielectric BP 0.9255 5 Flash Point °C t<sub>e</sub> 0.8934 5 A 236 to 7,0248 Fire Point 0.172 5 tc 2241.9 <u> 533 °C</u> В M Spec. 5 3083.70 C 168. AHc kcal/m 2 Ultra V. ΔHf A\*| 236 to 1.71642 5 X-Ray Dif. ΔFf B\* 434 °C 2130.5 Infrared ĸ Viscosity Solubility in c centistokes Acetone •c to 50 70 6.44 2 Carbon tet. ·c 4.22 Benzene 90 2.88 2 20 to 7,27190 Ether 110 2.03 2 B' ∟236 °C 2446.1 n-Heptane ₽v C' 40 186. 5 1018.2 4 Ethanol A | 80 •c 3.65865 4 Water A'\* 20 to 2.00685 5 Water in B'\* 236 °C (BV) 80 2348.0 1056.9 4 to Acl (AV)| 120 to •c 3.54918 4 ·c Bc liq. •K Cc Cryos. A\* c<sub>p</sub> vap.300°K 0.37430 2 consts. B 0.48346 c, vap. t °C 424.17 5 # for undercooled liquid grams/100 grams solvent REFERENCES: 1-Dow 2-API 4-Calc, from det, data 3 - Lit. 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

NAME	n-Hexad	ecylcyd	lohexane	STRUCTURAL FORMULA						
	1-Cyclol	nexylhe	xadecane			CH C16 H33 H2Ç CH2				
			T	· · · · · · · · · · · · · · · · · · ·	$\neg$					
Mole % Pur.	Ref. N	folecul ormula		Molecular Weight 308,572		HEC CHE				
<del></del>		Ref.	<u> </u>	1	Ref.				Ref.	
F, P, *C	33.6	2	dt/dP		1	, 1	1		-	
F.P. 100			*C/mm	l		g	to <u>*K</u>			
B. P. *C			25°C	330428.	5	ь				
760 mm	385.	2	BP t <sub>e</sub>	0.07595	4 5	£' i	to			
100 30	288. 246.	5	30 mm	1.07382	5	g'	<u>K</u>			
10	213.	5	ΔHm cal/g	1.0.302	-	h'				
1	158.	5	ΔHv cal/g		<del> </del>	m I	300 to	-0.0107	4	
Pressure mm 25°C	0.0423	5	25°C	75.12	5	n i	_600 <b>_•</b> K	0.0014 -0.0 <sub>6</sub> 50		
t <sub>e</sub>	1764.7	5	30 mm BP	53.81	5			-0.0650		
Density	<u> </u>	,	t.	44.21	5	m'	700 to	0.0979	4	
g/ml 20°	C 0.8279	# 2	Le (a, e)	40.54	5	n'	[10 <u>00 •K</u> ]	0.0012 -0.0 <sub>6</sub> 41	4	
dt 25	0.8246 0.8213		ΔHv/T <sub>e</sub>	17.69	5			6	_	
. 30	0,8411		d 246 to	70.73	5		ace tension s/cm. 20°C	28, 89	5	
ь	-0.0366		438 °C		5	ayne	30	27.98	5	
Ref. Inde			d' 20 to	77.53	5		40	27.09	5	
n <sub>D</sub> 20°		ž 2	d <sub>c</sub> g/ml	0, 235	5	Para	chor [P]			
25 30	1.4576 1.4557	7 2 4	V_mi/g	4. 25	5		20°C			
"C"	0,7343	_	tc *C	541.	5		40			
MR (Obs.	<del></del>	2	P <sub>c</sub> mm	6432.	5			864.1	5	
MR (Calc	.) 101 596	. 5	PV/RT 25°C	1 0000	١.	Exp.	. L.1.%/wt.			
(nD-d/2)	1.0456	7 2	30 mm	1.0000	5	Dist	u. ersion	98. ≠	2	
Dielectrie			BP	0.9244	5		h Point C	70.	Ē	
A 246 to	7.0263		t t c	0.8914	5		Point			
B (460 °C	2284.2 166.	5	ΔHc kcal/m	3230, 63	2	М.	Spec.			
A* 246 to			ΔHf	3230.03	-	Ultr	a V. ay Dif.			
B* 448 °		5	ΔFf		ļ	Infra				
K			Viscosity			Solu	bility in +			
t <sub>k</sub>   -t	<del>-</del>		centistokes り 50 °C	7, 26	2	Ace	etone		1	
( ·	<b>5</b>		70	4.69	2		rbon tet. nzene			
A'   20 to			90 110	3.16 2,20	2 2	Eth	er			
B' 246 °	2488.3 184.	5	BV 40 to	1052.5	4		deptane nanol			
A'* 20 to		$\rightarrow$	A'   80 °C	3.60448	4		ter			
B'* 246 *		5	(B <sup>V</sup> )  80 to	1094.4	4	Wa	ter in		L_	
Acl 460 to			(AV) 120 °C	3.48640	4					
Bc tc	C 4171.7 - 386.	5	c <sub>p</sub> liq. °K			1				
<del></del>				0.27500	1				l	
Cryos. A consts. B			c <sub>p</sub> vap.300K 400	0.37508 0.48384	2 2					
te °C	438, 33	5	c <sub>v</sub> vap.		1	i				
$T_R = 0.$			for undercoo	led liquid	ш	# + gr	ams/100 gra	ms solven	t.	
	CES: 1-Dov			Calc. from de	t. da				•	
SOURCE:			PI							
PURIFICA	TION:		PI				<del></del>			
	URE REFER									
			••							
1									•	
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No. 26 STRUCTURAL FORMULA n-Heptadecylcyclohexane NAME CHC17 H35 1-Cyclohexylheptadecane CH2 CH2 Molecular C23H46 HϩĊ Mole Molecular Weight 322.598 % Pur Ref. Ref. 37.8 2 F.P. °C F.P. 100% dt/dP to °C/mm g <u>•</u>K 113°C 336.97 B. P. °C h 0.07729 BP 4 760 mm 397. t<sub>e</sub> ſ G. 03994 5 to 100 299. 5 g' <u>•</u>K 30 255. 5 5 30 mm 1.09304 5 10 222 h' AHm cal/g 166. 5 to m AHv cal/g Pressure •K n 113°C 64.15 mml13°C 0.0425 o 30 mm 5 52.44 1770.3 t<sub>e</sub> 5 ВP 42.55 5 m' to Density 39.08 5 te (d, e) g/ml 20°C •K 0.8290 5 38.75 0.8257 2 ď4 AHV/T 17.40 5 30 0.8224 4 Surface tension 255 to 70.23 5 0.8422 4 1 450 1 113 29.01 dynes/cm. 20°C •c 0.0697 -0.0366 ь 4 30 28, 10 5 ď 73.18 40 27.20 5 e' Ref. Index •c 0.0825 5 255 20°C 1.4603 [P]  $\mathbf{n}_{D}$ Parachor dc g/ml vc ml/g tc °C 1.4583 25 2 20°C 30 1.4564 4 30 548. 5 40 "C" 0.7343 4 P<sub>c</sub> mm 5760. 5 Sugd. 903.1 5 106.64 MR (Obs.) 2 PV/RT Exp. L.1.%/wt. 106, 214 MR (Calc.) 113°C 1.0000 5 1.0458# (nD-d/2)2 u. 30 mm 1.0000 98.≠ 5 Dispersion 2 Dielectric BP 0.9135 5 Flash Point °C 255 to te 0.8780 5 7.02840 5 Fire Point ŧç 2326.8 M Spec. 5 C 164. AHc kcal/m Ultra V. ΔHf A\* | 255 to 1.76616 5 X-Ray Dif. ΔFſ B\* 460 °C 2220.7 Infrared ĸ Viscosity Solubility in centistokes Acetone to Carbon tet. •c Bensene A' 113 to 7.63490 Ether В' 2674.9 255 °C n-Heptane BV. | 184. to Ethanol ÃV i •c Water A'\* 113 2.14124 Water in B1# 255 °C 2490.6 (BV) to Ac (A<sup>V</sup>) °C Bc •c liq. сp ٠ĸ Cc Cryos. A. •ĸ c<sub>p</sub> vap. consts. B. c, vap. f .C 451.50 5 # for undercooled liquid grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det, data 5-Calc. by formula SOURCE: API API PURIFICATION: LITERATURE REFERENCES:

NAME	n-Octadeo	ylcy	clohexane		STRUCTURAL FORMULA					
INAME			ctadecane	CH CI8H37 HgC CHg						
<u> </u>	1 1	,			$\dashv$	Į į				
Mole % Pur.		lecul mula		Molecular Weight 336.6	24	H2C CH	Hg !			
		Ref.			Ref.		· · · · · · · · · · · · · · · · · · ·	Ref.		
F. P. *C	41.6	2	dt/dP			f to				
F.P. 1007	6	$\Box$	*C/mm	222.04	ا ۽ ا	g   '• <u>K</u>				
B. P. *C 760 mm	400	١, ١	121°C BP	332.06 0.07850	5 4	h				
100 mm	409. 309.	2 4	t,	0.04000	5	f' to		1		
30	265.	5	30 mm	1.1103	_5_	g'• <u>K</u>				
10	231.	5	ΔHm cal/g			h'		-		
Pressure	1		ΔHv cal/g			m to				
mm121°5		5	121°C 30 mm	62.82	5	0				
t <sub>e</sub>	1802.5	5	BP	41.57	5	m¹ to		+		
Density g/ml 20°0	0.8300#	2	t <sub>e</sub> (d, e)	38.06 37.74	5	n' l 'K				
dt 25	0.8267*	2	ΔHv/T	17.34	5	o'				
4 30	0.8234	4	d   270 to	69,24	5	Surface tension				
b	0.8432 -0.0 <sub>3</sub> 66	4 4	● 1 465 °C	0.0676	5	dynes/cm. 20°C	29.11 28.20	5		
Ref. Index	<del></del>	+	d' 121 to e' 270 °C	72.48	5	40	27.31	5		
n <sub>D</sub> 20°0	1.4610	2		0.0799	-	Parachor [P]				
25	1.4590 <sup>#</sup> 1.4573	2 4	d <sub>c</sub> g/ml v <sub>c</sub> ml/g			20°C				
"C"	<del></del> -	4	vc ml/g tc °C	555.	5	30 40				
MR (Obs.	0,7345	2	P <sub>c</sub> mm	5332.	5	Sugd,	942.1	5		
MR (Calc.		5	PV/RT			Exp. L.1,%/wt.	ĺ			
(nD-d/2)	1.0460#	2	121°C 30 mm	1.0000	5	u. Dispersion	98.≠	2		
Dielectric			BP	0.9132	5	Flash Point *C	/	┿		
A 270 to		5	<b>:</b> -	0.8768	5	Fire Point				
B (_555 °C	2365.1 161.	5	AHc kcal/m	<b>†</b>	$\vdash$	M. Spec.				
A+ 270 to		5	ΔHf			Ultra V. X-Ray Dif.				
B*[ 475 °C		5	ΔFf	ļ	-	Infrared	]			
K			Viscosity centistokes			Solubility in +				
t <sub>k</sub>   -to			η •c	1		Acetone Carbon tet.	İ			
<u>x</u>						Bensene				
A'   121 to		5				Ether n-Heptane				
c, ' 3	181.	5	B <sup>V</sup> to			Ethanol	1			
A** 121 to		5	A .   °C			Water				
B'+ 270 °C	<del></del>	5	(B <sup>V</sup> )  to			Water in	<del> </del>	+-		
Ac to			(A <sup>V</sup> )  °C		1					
Cc Cc	-		c liq. *K			i				
Cryos. A consts. B			c <sub>p</sub> vap. *K							
te °C	465.64	5	c <sub>v</sub> vap.			1				
	ercooled liquid	1				grams/100 gra	ms solve	nt		
REFEREN	CES: 1-Dow	2-A	PI 3-Lit. 4-	Calc, from de	t. da	ta 5-Calc. by for	mula			
SOURCE:		A	PI							
PURIFICA	TION:	A	PI							
LITERAT	JRE REFERE	NCE	S:							
}										
1										

No. 28 STRUCTURAL FORMULA n-Nonadecylcyclohexane NAME CH CIPH39 1-Cyclohexylnonadecane H2C Hac CHE Molecular Mole Ref. Molecular C25H50 % Pur Formula Weight 350.650 Ref. Ref. 45.2 2 dt/dP ſ to F.P. 100% °C/mm g <u>•ĸ</u> 5 124°C 374.1 B. P. °C h BP 0.08029 4 760 mm 420. 2 f 0.03954 5 to ŧ, 100 318. 4 g' •ĸ 5 30 272. 30 mm 1.1289 5 237 10 h' AHm cal/g 180 5 to m ١ ΔHv cal/g Pressure •K 124°C 61.18 49.70 5 n mm 124°C 0.03907 5 ٥ 30 mm 5 1881.9 t<sub>e</sub> 5 ВP 40.22 5 Density m' ١ to 37.59 5 te (d, e) g/ml 20°C n' •ĸ 0.8310<sup>‡</sup> 0.8277<sup>‡</sup> 36.41 5 ٥' 2 dt4 AHV/Te 17.51 5 30 0.8244 4 Surface tension 1 272 5 to 67.10 29.23 28.31 0.8442 -0.0<sub>3</sub>66 dynes/cm. 20°C | <u>48</u>0 | 124 •c 0.0640 5 Ъ 30 5 to 70.80 27.41 40 Ref. Index •c 0.0776 e¹ 272 1.4616 20°C [P] 2 Parachor  $n_D$ d g/ml v ml/g 25 1.4596 2 20°C ml/g 30 f° .C 1.4576 4 30 5 563. 40 "C" 0.7345 4 5 P<sub>c</sub> mm 4977. 5 Sugd. 981.1 MR (Obs.) 115.93≠ 2 PV/RT Exp. L. 1. %/wt. MR (Calc.) (nD-d/2) 115.450 1.0000 1.0461 124°C 5 u. 2 30 mm 1.0000 98. # 2 Dispersion 5 Dielectric BP 0.9098 5 Flash Point °C t<sub>e</sub> 0.8985 5 A 272 to 7.00170 Fire Point tc 2380.0 <u> 1563\_°C</u> M Spec. Ultra V. C ΔHc kcal/m 159. 5 ΔHf A\* 272 to 1.72697 5 X-Ray Dif. ΔFf B+ 490 °C 2255,8 Infrared ĸ Viscosity Solubility in centistokes Acetone Carbon tet. •c Benzene A' 124 to 7,59604 Ether 1272 °C 2728.3 5 n-Heptane вv C' 179. 5 Ethanol •c Water A1+ 124 to 2.11638 2537.2 5 Water in B'\* 272 °C (BV) to Ac| (AV) to •c Bc •c cp liq. ۰ĸ Cc Cryos. A. c<sub>p</sub> vap. •ĸ consts. B° c, vap. 479.56 for undercooled liquid grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det, data 5-Calc, by formula SOURCE: API API PURIFICATION: LITERATURE REFERENCES:

							No. 29			
NAME	n-Eicosy	cyclob	exane		İ	STRUCTURAL FORMULA				
	1-Cycloh	exyleic	osane			H2C/	C20 H41			
Mala	Dad N		,	Malagulan		H <sub>2</sub> C C	H <sub>2</sub>			
Mole % Pur.	Ref. M	ormul		Molecular Weight 364.6	76	`CH <sub>2</sub>	:			
		Ref		T	Ref.	T		Ref.		
F. P. *C	48.5	2	dt/dP				I			
F.P. 100%	1	+-	°C/mm	İ	1	f to	1			
B. P. *C		1	132°C	351.3	5	h	1	١.		
760 mm	430.	2	BP t	0.08137	5	f' to		_		
100 30	327. 281.	5	t <sub>e</sub> 30 mm	1.1471	5	g' ' <u>K</u>				
10	246.	5	ΔHm cal/g	1.14/1	<del>  _</del>	h'	İ	1		
1	188.	5		<del> </del>	+-	m i to				
Pressure	0.0434		ΔHv cal/g 132°C	59.69	5	n		İ		
mm 132°C	0.0426 1855.7	7   5	30 mm	48.61	5	0		1		
Density		+	BP	39.21 35.67	5	m' to		I		
g/ml 20°C	0.8318	<b>#</b> 2	t <sub>e</sub> (d, e)	35, 37	5	",   _ <u>"K</u>	1	1		
dt 25	0.8285		AHv/Te	17.02	5					
	0.8252		d 281 to	66, 33	5	Surface tension				
a b	0.8450 -0.0 <sub>3</sub> 66		_e   490 °C	0.0631	5	dynes/cm. 20°C	29.31 28.39	5		
Ref. Index	-0.0300	+-	d'   132 to	69.51 0.0744	5	40	27.49	5		
n <sub>D</sub> 20°C	1.4622	<b>#</b> 2		0.0744	+	Parachor [P]				
45	1.4602		d g/ml			20°C				
30	1.4582	-	vc ml/g tc °C	568.	5	30 40		1		
"C"	0,7346		Pcmm	4629.	5	11	1020.1	5		
MR (Obs.)	120.57	2	PV/RT			Exp. L.1.%/wt.				
MR (Calc.) (nD-d/2)	120.068	≠ 5 2	132°C	1.0000	5	u.				
Dielectric	1	+-	30 mm BP	1.0000 0.9111	5	Dispersion	98.≠	2		
A 281 to	7,0031	2 5	t.	0.8728	5	Flash Point *C Fire Point		1		
B   568 °C	2419.8	دُ   آ	<sup>1</sup> c					+		
c	157.	5	AHc kcal/m			M. Spec. Ultra V.				
A* 281 to	1.7781		ΔHſ ΔFſ	1	l	X-Ray Dif.				
B*[500 °C	2311.0	5	Viscosity			Infrared		↓		
c			centistokes	1	1	Solubility in *	1	1		
t <sub>k</sub> •c		- 1	η ·c	į.	1	Acetone Carbon tet.	İ			
X V						Benzene	İ			
A'   132 to B'   281 °C	7.5825 2766.3	7   5				Ether n-Heptane		1		
c'	177.	5	B <sup>V</sup> to A <sup>V</sup> C			Ethanol	ł			
A'+ 132 to	2, 1227	8 5		_	1	Water				
B'* 281 °C	2575.0	5	(B <sup>V</sup> )  to			Water in	ļ	+-		
Ac to			(A <sup>V</sup> )  °C	<u> </u>		1				
Bc tc C	.		c <sub>p</sub> liq. °K							
Cryos. A*	<del> </del>	+	1	1						
consts. B°			Р.							
t <sub>e</sub> °C	490.94	5	c <sub>v</sub> vap.	l	<u></u>	†				
# for under			DI 2 144 4	Cala farm :		grams/100 gra		nt		
	ED: 1-D0A	-		Caic, from de	et. di	ata 5-Calc. by for	inuid			
SOURCE:			PI							
PURIFICAT			PI							
LITERATU	KE REFER	ENCE	s:							

No. 30 NAME n-Heneicosylcyclohexane STRUCTURAL FORMULA CHC21 H43 1-Cyclohexylheneicosane CHE Molecular C27H54 Molecular Ref. Mole Weight 378,702 % Pur. Ref. Ref Ref 51.5 F.P. °C F.P. 100% 2 dt/dP to \*C/mm <u>•</u>K g 138°C 356.2 B. P. \*C h 0.08244 BP 760 mm 440. 2 0.04071 5 f to 100 335. 5 g' •ĸ 30 5 30 mm 289. 1.1625 5 10 254. þ, AHm cal/g 1 195 5 to ΔHv cal/g Pressure •K n 138°C 58.40 mm 138°C 0.04265 0 47.54 5 30 mm t<sub>e</sub> 1880.9 5 BP 38.29 5 Density g/ml 20°C m to te (d, e) 34.75 5 n' •ĸ 0.8326 2 34.45 5 o١ 0.8294 d4 25 AHV/T 16.96 5 30 0.8262 4 Surface tension 65.23 d 1 289 5 to 0.8454 dynes/cm. 20°C 29.40 1 503 <u>•</u>c 0.0612 5 ь -0.0364 4 30 ٦٠-28,50 5 T38 to 68.32 1 40 27,63 5 Ref. Index •' 289 0.0719 20°C 1.4627 n D 2 Parachor [P] d<sub>c</sub> g/ml 25 1.4607<sup>‡</sup> 20°C 2 c ml/g 30 1.4588 4 30  $\mathbf{t_c}$ 576. 5 40 "C" 4 0.7346 P<sub>c</sub> mm 4447. 5 Sugd. 1059. 1 5 125,21# MR (Obs.) 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 124.686 138°C 1,0000 1.0464# (nD-d/2) 2 30 mm 98. # 1.0000 Dispersion 5 2 Dielectric BP 0.9103 5 Flash Point °C A 289 to t<sub>e</sub> 0.8712 7.00501 Fire Point 2453.9 B <u>| 576 °C</u> M Spec. C 155. AHc kcal/m Ultra V. ΔHf 1.79203 A\* 289 to X-Ray Dif. ΔFf B+ 513 °C 2344.5 Infrared Viscosity Solubility in centistokes Acetone •c Carbon tet. •c Bensene A' | 138 to 7.57669 Ether 2800.3 B' [289 °C n-Heptane 175. 5 В to Ethanol Ã۷¦ •c Water A'\* 138 to 2.13093 Water in (BV) B'# 289 °C 2607.8 to Ac | (AV) •c Bc c<sub>p</sub> liq. ٠ĸ Cc Cryos. A\* •ĸ cp vap. consts. B° 1° .C c, vap. 502.77 5 # for undercooled liquid grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det. data 5-Calc, by formula SOURCE: API **PURIFICATION:** API LITERATURE REFERENCES:

NAME	n-Doc	osylc	ycloł	nexane			STRUCTURAL FORMULA				
	1-Cycl	ohex	yldoo	osane			CH C22 H45 H2C CH2				
Mole % Pur.	Ref.	Mol For	lecul muls	C <sub>28</sub> H <sub>56</sub>	Molecular Weight 392.7	28	, ,	H•			
			Ref.			Ref.			Ref.		
F, P, *C	54.4		2	dt/dP	1		f to				
F.P. 1009	5			°C/mm	ļ		g• <u>K</u>	]			
B. P. *C				143°C	360.8	5	h l		1		
760 mm	449.		2	BP t <sub>e</sub>	0.08352 0.04083	5	f'   to		T		
100	343. 296.		5	30 mm	1,1780	5	g' <u>K</u>	1	1		
10	260.		5		1.1780	+-	h'		1		
1	200.		5	ΔHm cal/g	<del> </del>	-	m to		1		
Pressure				ΔHv cal/g 143°C	56.92	5	n K		l		
mm 143°		1268	5	30 mm	46.38	5	•				
t <sub>e</sub>	1905.4		5	BP	37.34	5	m¹ to		1		
Density g/ml 20°0		334 <sup>‡</sup> ,	2	te te (d, e)	33.79 33.53	5	n'ı K	1			
	0.8	301	2			1 i	0'		1		
d <sub>4</sub> 25	0.8	268	4	ΔHv/T <sub>e</sub>	16.87	5	Surface tension	†	T		
	0.84		4	d 296 to e 514 °C	63.84	5	dynes/cm. 20°C	29.49	5		
Ъ	-0.0	366	4	d 143 to	0.0590 66,77	5	₹ 30	28.56	5		
Ref. Index				e'   296 °C	0.0689	5	40	27.66	5		
n <sub>D</sub> 20°0	1.40	532 <sup>#</sup>	2	d <sub>c</sub> g/ml			Parachor [P]				
30	1.4	512 <sup>#</sup>	2 4	v mi/g			20°C				
"C"	0.7		4	-	578.	5	40	ł			
MR (Obs.			2	P <sub>c</sub> mm	4054.	5		1098.1	5		
MR (Calc.			5	PV/RT			Exp. L.1.%/wt.		1		
(nD-d/2)	1.04	165≠	2	143°C 30 mm	1.0000	5	u. Dispersion	98.≠	2		
Dielectric				BP	0.9102	5		70.	1-		
A 296 to	7.00	0634	5	t <sub>e</sub>	0.8704	5	Flash Point C Fire Point	i	ĺ		
B   578 °C	2487.7		5	tc			M. Spec.	<del> </del> -	+-		
С	154.		5	ΔHc kcal/m			Ultra V.		i		
A* 296 to		0375	5	ΔFÍ	1		X-Ray Dif.				
B* 524 *C	2376.8		5	Viscosity		$\vdash$	Infrared	ļ	<u> </u>		
c	_			centistokes			Solubility in *	Ł			
t <sub>k</sub> To				η •c	1		Acetone Carbon tet.		1		
X			$\sqcup$			1	Benzene	1			
A'   143 to B'   296 °C		7039	5				Ether		1		
c, 1270	174.		5	B <sub>v</sub> to			n-Heptane Ethanol	1			
A'* 143 to		3816	5	A I C	1		Water		1		
B' + 296 °C			5	(B <sup>V</sup> )  to	]		Water in	ļ	↓		
Acl to				(A <sup>V</sup> )  °C					1		
Bc tc C	<u>.</u>			c <sub>p</sub> liq. *K	<b>†</b>		1				
Ce			Ш	_							
Cryos. A' consts. B'				c <sub>p</sub> vap. *K							
t <sub>e</sub> °C	513.60	)	5	c <sub>v</sub> vap.				L	<u></u>		
# for und	ercooled l	iquid					grams/100 gra	ms solver	nt		
REFEREN	CES: 1-I	)ow	2-A	PI 3-Lit. 4-	Calc. from de	t. da	ta 5-Calc. by for	rmula			
SOURCE:			AP	I							
PURIFICA	TION:		AP	I							
LITERATU	IRE REF	ERE	NCES	S:							
1											
l											

No. 32 n-Tricosylcyclohexane STRUCTURAL FORMULA NAME 1-Cyclohexyltricosane H2C CH2 Molecular C29H58 Mole Molecular Weight 406, 754 % Pur Ref. Ref Ref. F.P. °C 57.0 2 dt/dP to F.P. 100% °C/mm <u>•</u>K g 149°C 5 366, 2 B. P. °C h 0.08458 BP 4 760 mm 459. 2 <sup>t</sup>e 0.04096 5 ſ١ to 100 352. g' •ĸ 304. 30 1.1932 30 mm 5 5 10 268. h' AHm cal/g 207 to m AHv cal/g Pressure mm 149°C •K n 149°C 30 mm 55.82 5 0.04260 o 45.46 5 1928.9 BP 36.52 5 m' to Density te (d, e) 32.95 5 g/ml 20°C 0.8341 n' •ĸ 32.69 5 0.8308# 2 d4 ΔHv/Te 16.78 5 30 0.8275 4 Surface tension ı 304 62.99 5 0.8473 dynes/cm. 20°C 29.56 5 e | 525 d' | 149 •c 0.0577 5 ь -0.0366 28.64 30 5 to 65.78 27.73 5 40 Ref. Index e¹ •c 0.0668 304 20°C 1.4637 [P]  $\mathbf{n}_{\mathbf{D}}$ Parachor d g/ml wc ml/g 1.4617# 25 20°C 30 1.4598 4 30 •c 5 tc 584. 40 "C" 0.7350 4 Pc 5 Sugd. 1137.1 5 mm 3819. 134.49<sup>#</sup> 133.922 MR (Obs.) PV/RT Exp. L.1.%/wt. MR (Calc.) 1.0000 1.49°C 1.0466 (nD-d/2) 2 u. 30 mm 1.0000 98.≠ 2 Dispersion Dielectric 0.9087 ВP Flash Point °C 0.8681 304 to t, 7.00879 5 Fire Point 2522.2 \_584 °C M Spec. ∆'Hc kcal/m С 152. 5 Ultra V. ΔHf A# | 304 to 1.81836 5 X-Ray Dif. ΔFf B\* \_ 535 °C 2411.1 Infrared Viscosity ĸ Solubility in centistokes Acetone Carbon tet. •c Benzene A' 149 to 7.56556 Ether B' ∟3<u>04</u> °C C' 2868,5 5 n-Heptane Вv 172. 5 to Ethanol •c Water A'# 149 to 2.14637 Water in B1# 304 °C 2673.3 (BV) to Ac |  $(A^{V})_{I}$ °C BcL •c cp liq. ۰ĸ Cc Cryos. A. c<sub>p</sub> vap. ٠ĸ consts. B° c, vap. te \*C 525.38 ≠ for undercooled liquid grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

	n-Teti	ra c o s	vlcv	clohexane			CTRUCTURA!	No. 33			
NAME						-	STRUCTURAL FORMULA CHC24H49				
L	1-Cye.		<u> </u>	racosane			H <sub>2</sub> Ç Ç	724 1149 H2			
Mole % Pur.	Ref.	Mol For	ecul muls		Molecular Veight 420.78	30	H2 C CH2	H <sub>2</sub>			
			Ref.			Ref.		Rei			
F. P. °C	59.5		2	dt/dP			f to				
F.P. 100%			$\Box$	°C/mm	201.0		g '°K	İ			
B. P. *C	4/7			153°C	391.8 0.08538	5 4	h				
760 mm 100	467. 359.		2 5	t <sub>e</sub>	0.04104	5	f'   to				
30 10	310.		5	30 mm	1.2047	5	g' <u>*K</u>				
10	274. 213.		5 5	ΔHm cal/g		L	h'	ļ			
Pressure				ΔHv cal/g	54.03		m to				
mm 153°C		994	5	153°C	54.82 44.52	5					
t <sub>e</sub>	1947.6		5	BP	35.69	5	m' to				
Density g/ml 20°C	0,83	47 <sup>‡</sup>	2	te te (d, e)	32.13 31.87	5	n'  K_	l i			
at 25	0.83		2	ΔHv/T <sub>e</sub>	16.73	5	· ·				
	0, 82		4	d 310 to	62, 02	5	Surface tension				
a b	-0.03		4 4	e_l_535_ °C	0.0564	5	dynes/cm. 20°C	29.63 5 28.73 5			
Ref. Index		,	H	d' 153 to e' 310 °C	64.86 0.0656	5	40	27.85 5			
n <sub>D</sub> 20°C	1.46	41	2	d <sub>c</sub> g/ml			Parachor [P]				
25 30	1.46		2	v mi/g		_	20°C 30				
"C"	0.73		4		590.	5	40				
MR (Obs.)	+		2	P <sub>c</sub> mm	3692.	5	ļ <u> </u>	1176.1 5			
MR (Calc.	) 138.54	10	4	PV/RT 153°C	1.0000	5	Exp. L.1.%/wt.				
(nD-d/2)	1.04	675	2	30 mm	1.0000	5	Dispersion	98. ≠ 2			
Dielectric	+			BP t	0.9077 0.8664	5	Flash Point C				
A <sup>1</sup> 310 to B <sub>1</sub> 590 °C		03	5	t <sub>e</sub>	0.0001		Fire Point				
c '	150.		5	AHc kcal/m			M. Spec. Ultra V.				
A* 310 to		3227	5	ΔHf ΔFf			X-Ray Dif.				
B* 540_°C	2436.9		5	Viscosity		†	Infrared	<b></b>			
c	_			centistokes			Solubility in Acetone				
t <sub>k</sub> to				η °C			Carbon tet.				
A   153 to		5534	5		1		Benzene Ether				
B' 310 °C	2895.4		5	- <u>-</u>	<del> </del>	+	n-Heptane				
C'	170.		5	B <sup>V</sup> to C			Ethanol Water				
A'*153 to B'*310 °C		7549	5	(B <sup>V</sup> )  - ;	·		Water in				
Acl to	<del>                                     </del>			(A <sup>V</sup> )  °C		1					
Bc tc *C						1	1				
Cc —	<del></del>			P							
Cryos. A° consts. B°				c <sub>p</sub> vap. *K							
t <sub>e</sub> °C	534.77		5	c <sub>v</sub> vap.	L	1	L				
f for und				DI 2 1	6.1 ( :		grams/100 gra				
	CES: 1-E	,0₩		PI 3-Lit. 4- PI	Caic. Irom de	et. da	ata 5-Calc. by for	mula			
SOURCE:	TION:			PI PI							
PURIFICA		ED E									
LILEKATU	KE KEF	EKE)	NUE	<b>&gt;</b> :							
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No. 34 n-Pentacosylcyclohexane STRUCTURAL FORMULA NAME CH C25 H51 l-Cyclohexylpentacosane ĊΗ2 H2Ċ Molecular Weight 434,806 Mole Molecular CHZ C31H62 % Pur Formula Ref. Ref Ref. 61.9 2 dt/dP to F.P. 100% °C/mm •ĸ g 158°C 396.8 5 B, P, °C h 0.08645 BP 4 760 mm 476. 2 f 0.04117 5 to 100 366. 5 g' <u>•</u>K 30 317. 5 30 mm 5 1.2201 10 280. 5 h' AHm cal/g 218. to m AHv cal/g Pressure mm158°C •K 158°C 53.60 n 0.03996 o 43.57 5 30 mm 1971.0 t<sub>e</sub> 5 BP 5 34.91 Density m to te (d, e) 31.35 5 g/ml 20°C 0.8353 n' •ĸ 5 31.11 0.8321  $d_4^t$ AHv/T 16,65 5 30 0.8289 4 Surface tension 1 317 60.90 ď 5 to 0.8481 dynes/cm. 20°C 29.69 | 546 | 158 0.0546 <u>•c</u> 5 ь -0.0364 28.79 ď٠ 30 5 10 10 63.57 Ref. Index 40 27.91 5 e¹ 317 0.0631 5 20°C 1.4645 [P] n<sub>D</sub> Parachor d g/ml 1.4626 25 2 20°C c ml/g 30 1.4607 4 30 •c 594. 5 ŧ<sub>c</sub> 40 "C" 0.7349 4 P<sub>c</sub> mm 3443. 5 Sugd. 1215.1 5 MR (Obs.) 143.77# 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 143.158 158°C 1.0000 5 1.0468 (nD-d/2) 2 u. 30 mm 1.0000 98.≠ Dispersion 2 Dielectric BP 0.9071 Flash Point °C 0.8652 A 317 to 7.01201 t. 5 Fire Point t<sub>c</sub> 1594 °C 2582.0 В M Spec. 149. 5 AHc kcal/m Ultra V. ΔHf A\* | 317 to 1.84364 5 X-Ray Dif. ΔFf B\* 556 °C 2469.9 Infrared ĸ Viscosity Solubility in c centistokes Acetone **t**x | to Carbon tet. •c Bensene A' | 158 to 7,55992 Ether 2929.4 B' <u>[317</u> <u>.c</u> n-Heptane BV I 169. to Ethanol AV | A\*\* 158 •c Water 2.18184 Water in B'# 317 °C 2737.5 (BV) to Ac (AV) °C Bc •c cp liq. ۰ĸ Cc Cryos. A\* •ĸ c<sub>p</sub> vap. consts. B° c, vap. te °C 545.59 # for undercooled liquid grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

Mole % Pur.  F.P. °C 64 F.P. 100%  B.P. °C 760 mm 484 100 287 1 224  Pressure mml64°C 0 1990  Density g/ml 20°C dt 25 0 4 30 0  a 0 0  Ref. Index nD 20°C 1 25 1 30 1  "C" 0  MR (Obs.) 148 MR (Calc.) (nD-d/2) 1  Dielectric A 324 to B 1595 °C C 2495  K c tk c t	042529 8359 # 8326 # 8326 # 8491 0366 4649 # 4629 # 4609 7350	Ref.   2	32 <sup>H</sup> 64	378.9 0.08725 0.04123 1.2316 52.54 42.74 34.18 30.58 30.38 16.57 60.07 0.0535 62.59 0.0613	32 Ref. 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	f to g - *K h   to g'   - *K h'   to n   - *K o'   *K o'   Surface tension dynes/cm. 20°C	e He	Ref
# Pur.    F. P. °C   64   F. P. 100%     B. P. °C   760 mm   484     100   373   324     10   287   1   224     Pressure mil64°C   1990     Density g/ml 20°C   dt 25   0     dt 25   0   0	.00 .04252.9 .8359 # .8293 .8293 .8491 .0366 .4649 # .4629 .7350 .41#	2 2 5 5 5 5 5 5 5 2 2 4 4 4	dt/dP  *C/mm 164*C BP  te 30 mm  AHm cal/g  AHv cal/g 164*C 30 mm  BP  te te (d,e) AHv/Te  d   324 to e   5555 *C d'   164 to e'   324 *C dc gml/g tc ml/g tc c*C	378.9 0.08725 0.04123 1.2316 52.54 42.74 34.18 30.58 30.38 16.57 60.07 0.0535 62.59	Ref. 5 4 5 5 5 5 5 5 5 5 5	f to g	e He	Ref
F. P. 100%  B. P. °C 760 mm 484 100 373 30 324 10 1287 1 224  Pressure mm164°C 0 1990  Density g/ml 20°C dt 25 d4 30 0  a 00 b -0  Ref. Index nD 20°C 1 30 11  "C" 0  MR (Obs.) 148 MR (Calc.) 147 (nD-d/2) 1  Dielectric A 324 to B 1595 °C C C 255 K c 1 0 A*164 to B*1324 °C C*167  A*164 to B*1324 °C C*167  A*164 to B*1324 °C C*167  A*164 to B*1324 °C C*167  A*164 to B*1324 °C C*167  A*164 to B*1324 °C C*167  A*164 to B*1324 °C C*167  A*164 to B*1324 °C C*167  A*164 to B*1324 °C C*167  A*164 to B*1324 °C C*167  A*164 to B*1324 °C C*167  A*164 to B*1324 °C C*167  A*164 to B*1324 °C C*167  A*164 to B*1324 °C C*167  A*164 to B*1324 °C C*167  A*164 to B*164 to C 2755  Ac  to B*164 to C 2755  Ac  to B*164 to C 2755  Ac  to C 2755	.00 .04252.9 .8359 # .8293 .8293 .8491 .0366 .4649 # .4629 .7350 .41#	2 2 5 5 5 5 5 5 5 2 2 4 4 4	dt/dP  *C/mm 164*C BP  te 30 mm  AHm cal/g  AHv cal/g 164*C 30 mm  BP  te te (d,e) AHv/Te  d   324 to e   5555 *C d'   164 to e'   324 *C dc gml/g tc ml/g tc c*C	0.08725 0.04123 1.2316 52.54 42.74 34.18 30.58 30.38 16.57 60.07 0.0535 62.59	5 4 5 5 5 5 5 5 5 5	g		Ref
F. P. 100%  B. P. °C 760 mm 484 100 373 30 324 10 1287 1 224  Pressure mm164°C 01990  Density g/m1 20°C dt 25 d4 30 0  a 00 b -0  Ref. Index nD 20°C 1 30 11  "C" 0  MR (Obs.) 148 MR (Calc.) 147 (nD-d/2) 1  Dielectric A 324 to B 1595 °C C 2507  A*1 164 to B*1 324 °C C 4*1 164 to B*1 324 °C C 167  A*1 164 to B*1 324 °C C 167  A*1 164 to B*1 324 °C C 2755  Ac  to Bc  to C 2755  Ac  to Bc  to C 2755  Ac  to C 2755  Ac  to C 2755	04252 9 8359 \$\frac{4}{8} 8293 8491 0366 4649 \$\frac{4}{4} 629 \$\frac{4}{4} 609 7350 41 \$\frac{4}{4}\$	2 5 5 5 5 5 5 5 5 5 5 5 5 6 6 6 6 6 6 6	*C/mm 164*C BPP  te 30 mm  AHm cal/g 164*C 30 mm BP  te (d,e) AHv/Te d   324 to e   555 *C d'   164 to e'   324 *C d c g/ml v_c mi/g t_c *C	0.08725 0.04123 1.2316 52.54 42.74 34.18 30.58 30.38 16.57 60.07 0.0535 62.59	5 5 5 5 5 5 5 5	g		
F. P. 100%  B. P. °C 760 mm 484 100 373 30 324 10 1287 1 224  Pressure mm164°C 0 1990  Density g/ml 20°C dt 25 d4 30 0  a 00 b -0  Ref. Index nD 20°C 1 30 11  "C" 0  MR (Obs.) 148 MR (Calc.) 147 (nD-d/2) 1  Dielectric A 324 to B 1595 °C C C 255 K c 1 0 A*164 to B*1324 °C C*167  A*164 to B*1324 °C C*167  A*164 to B*1324 °C C*167  A*164 to B*1324 °C C*167  A*164 to B*1324 °C C*167  A*164 to B*1324 °C C*167  A*164 to B*1324 °C C*167  A*164 to B*1324 °C C*167  A*164 to B*1324 °C C*167  A*164 to B*1324 °C C*167  A*164 to B*1324 °C C*167  A*164 to B*1324 °C C*167  A*164 to B*1324 °C C*167  A*164 to B*1324 °C C*167  A*164 to B*1324 °C C*167  A*164 to B*164 to C 2755  Ac  to B*164 to C 2755  Ac  to B*164 to C 2755  Ac  to C 2755	04252 9 8359 \$\frac{4}{8} 8293 8491 0366 4649 \$\frac{4}{4} 629 \$\frac{4}{4} 609 7350 41 \$\frac{4}{4}\$	2 5 5 5 5 5 5 5 5 5 5 5 5 6 6 6 6 6 6 6	*C/mm 164*C BPP  te 30 mm  AHm cal/g 164*C 30 mm BP  te (d,e) AHv/Te d   324 to e   555 *C d'   164 to e'   324 *C d c g/ml v_c mi/g t_c *C	0.08725 0.04123 1.2316 52.54 42.74 34.18 30.58 30.38 16.57 60.07 0.0535 62.59	5 5 5 5 5 5 5 5	g		
760 mm   484   373   324   10   287   1   224   10   1990   1990   10   10   10   10	8359 # 8326 # 8326 # 8293 8491 0366 4649 # 4609 7350	5 5 5 5 5 5 2 2 4 4 4 4	BP te 30 mm  AHm cal/g  AHv cal/g 164°C 30 mm BP te (d,e) AHv/Te  d   324 to e   5555 °C d¹   164 °C  d c g/ml v c ml/g t c °C	0.08725 0.04123 1.2316 52.54 42.74 34.18 30.58 30.38 16.57 60.07 0.0535 62.59	5 5 5 5 5 5 5 5	h   to g'  *K h'   to n  *K o  *K o'   Surface tension dynes/cm. 20°C		
100 373 30 324 10 287 1 224  Pressure mm164°C 0 1990  Density g/ml 20°C dt 25 0 d4 30 0  a 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	8359 # 8326 # 8326 # 8293 8491 0366 4649 # 4609 7350	5 5 5 5 5 5 2 2 4 4 4 4	te 30 mm  AHm cal/g  AHv cal/g 164°C 30 mm  BP te te (d,e) AHv/Te d   324 to e   555 °C d'   164 to e'   324 to c'   324 to c'   324 to	0.04123 1.2316 52.54 42.74 34.18 30.58 30.38 16.57 60.07 0.0535 62.59	5 5 5 5 5 5 5 5 5	g'		
30 324 10 287 1 224  Pressure mm164°C 0 1990  Density g/ml 20°C 0 4 30 0  Ref. Index nD 20°C 1 25 1 30 1  "C" 0  MR (Obs.) 148 MR (Calc.) (nD-d/2) 1  Dielectric A 324 to B 595 °C C 147  A* 324 to B* 565 °C K  c tk	8359 # 8326 # 8326 # 8293 8491 0366 4649 # 4629 # 4609	5 5 5 5 5 2 2 4 4 4 4 4	30 mm  AHm cal/g  AHv cal/g  164°C  30 mm  BP  te te(d,e)  AHv/Te d   324 to e   555 °C d'   164 to e'   324 co d' g/ml  v_c mi/g t_c °C	1,2316 52,54 42,74 34,18 30,58 30,38 16,57 60,07 0,0535 62,59	5 5 5 5 5 5 5	g'		
10 287 1 224  Pressure mml64°C 0 1990  Density g/ml 20°C 0 4 25 0 4 30 0  Ref. Index nD 20°C 1 25 1 30 1  "C" 0 0 0 14 0 14 0 14 0 14 0 14 0 14 0 14	8359 # 8326 # 8326 # 8293 8491 0366 4649 # 4629 # 4609 .7350	5 5 5 5 2 2 4 4 4 4 4	AHm cal/g  AHv cal/g  164°C  30 mm  BP  te te(d,e)  AHv/Te  d   324 to e   555 °C d'   164 to e'   324 °C  d_c g/ml/g tc °C	52. 54 42. 74 34. 18 30. 58 30. 38 16. 57 60. 07 0. 0535 62. 59	5 5 5 5 5 5 5	m   to n   °K o  m' to n' °K o'  Surface tension dynes/cm. 20°C		
1 224  Pressure mm164°C 0 1990  Density g/m1 20°C 0 4 25 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	8359 ± 8326 ± 8293 8491 0366 4649 ± 4629 ± 4609 .7350 41 ±	5 5 5 2 2 4 4 4 4 4	AHv cal/g 164°C 30 mm BP te te (d, e) AHv/Te d   324 to e   555 °C d'   164 to e'   324 °C d g/ml v_c mi/g t c °C	42.74 34.18 30.58 30.38 16.57 60.07 0.0535 62.59	5 5 5 5 5 5	m' to n' eK  Surface tension dynes/cm. 20°C		
mm164°C te 1990  Density g/m1 20°C dt 25 0 0 te 25 0 0 Ref. Index nD 20°C 25 1 30 1  "C" 0 MR (Obs.) 148 MR (Calc.) (nD-d/2) 149 Dielectric A 324 to B 595 °C C 147  A* 324 to B* 565 °C K c tk   °C A'   164 to B' 324 °C C' A'* 164 to B'* 324 °C C' C' C' C' C' C' C' C' C' C' C' C' C'	8359 # 8326 # 8293	2 2 4 4 4 4 4	164°C 30 mm BP  te te (d, e)  ΔHv/Te  d   324 to e   555 °C d'   164 to e'   324 °C  d_c g/ml v_c ml/g t_c °C	42.74 34.18 30.58 30.38 16.57 60.07 0.0535 62.59	5 5 5 5 5 5	m' to n' eK  Surface tension dynes/cm. 20°C		
te 1990  Density g/ml 20°C 0 dt 25 0 d4 30 0  Ref. Index nD 20°C 1 25 1 30 1  "C" 0  MR (Obs.) 148 MR (Calc.) (nD-d/2) 1  Dielectric  A 324 to B 595 °C 2607 C 147  A* 324 to B* 565 °C 2495 K  c ttk to to tx  0  A* 1 164 to B* 324 °C 2755  Ac  to Bc  tc °C C Cc	8359 # 8326 # 8293	2 2 4 4 4 4 4	30 mm BP  tente (d, e)  AHv/Tente  d   324 tone   555 °C  d   164 °C  d c g/ml  v c ml/g  t c °C	42.74 34.18 30.58 30.38 16.57 60.07 0.0535 62.59	5 5 5 5 5 5	m' to n' *K o'  Surface tension dynes/cm. 20°C		
Density g/ml 20°C dt 25 0 dt 30 0  a 0 0  Ref. Index nD 20°C 1 25 1 30 1  "C" 0  MR (Obs.) 148 MR (Calc.) (10-d/2) 1  Dielectric  A 324 to B 1595 °C C 2495  K c c t t	8359 # 8326 # 8293   8491   0366   4649 # 4629 # 4609   .7350   .41 #	2 2 4 4 4 4 2 2 4	te (d, e)  AHv/Te  d   324 to e   555 °C  d'   164 to e'   324 °C  d_g/ml v_c ml/g t_c °C	30.58 30.38 16.57 60.07 0.0535 62.59	5 5 5 5	n'		
g/ml 20°C 0 dt 25 0 dt 25 0 dt 25 0 a 0 0 end of the control of th	. 8326* . 8293 . 8491 . 0 <sub>3</sub> 66 . 4649* . 4629* . 4609 . 7350 . 41*	2 4 4 4 2 2 4	d   324 to e   555 °C d¹   164 to e¹   324 °C d²   164 co d²   g/ml vc ml/g tc °C	30.38 16.57 60.07 0.0535 62.59	5 5 5 5	n'		_
dt 25 d4 30 0 a 0 b -0 Ref. Index nD 20°C 1 25 1 30 1 "C" 0 MR (Obs.) 148 MR (Calc.) 147 (nD-d/2) 1 Dielectric A 324 to B 1595 °C 2607 C 2495 K c 2495 K c 4 164 to 2495 K c 2755 Ac 164 to 2755 Ac 2755 Ac 2755 Ac 2755	. 8326* . 8293 . 8491 . 0 <sub>3</sub> 66 . 4649* . 4629* . 4609 . 7350 . 41*	2 4 4 4 2 2 4	ΔHv/T <sub>e</sub> d   324 to e   555 °C d'   164 to e'   324 °C d <sub>e</sub> g/ml v <sub>c</sub> ml/g t <sub>c</sub> °C	16.57 60.07 0.0535 62.59	5 5 5	Surface tension dynes/cm. 20°C		_
Ref. Index   D   C   C   C   C   C   C   C   C   C	. 8293 . 8491 . 0366 . 4649 <sup>‡</sup> . 4629 <sup>‡</sup> . 4609 . 7350	4 4 4 2 2 4	d 324 to e   555 °C d'   164 to e'   324 °C dc g/ml vc ml/g tc °C	60.07 0.0535 62.59	5 5 5	dynes/cm. 20°C		T
b -0  Ref. Index nD 20°C 25 1 30 1  "C" 0  MR (Obs.) 148 MR (Calc.) 1  Dielectric  A   324 to B   595 °C 2607 C 147  A*  324 to to to two conditions of two	. 4649 <sup>‡</sup> . 4629 <sup>‡</sup> . 4609 . 7350	2 2 4	e   555 °C  d   164 to to to d g/ml vc ml/g tc °C	0.0535 62.59	5	dynes/cm. 20°C		1
Ref. Index nD 20°C 1 25 30 1 "C" 0 MR (Obs.) 148 MR (Calc.) 147 (nD-d/2) 1 Dielectric A   324 to B   595 °C   2495 K   C   T   47  A*  324 to B   565 °C   2495 K   C   T   47  A*  324 to B   565 °C   2495 K   C   T   565 °C   2495 K   C   T   565 °C   2495 K   C   T   565 °C   2495 K   T   T   565 °C   2495 K   T   T   565 °C   2495 K   T   T   565 °C   2495 K   T   T   565 °C   2495 K   T   T   565 °C   2495 K   T   T   565 °C   2495 K   T   T   565 °C   2495 K   T   T   565 °C   2495 K   T   T   565 °C   2495 K   T   T   T   T   T   T   T   T   T	. 4649 <sup>‡</sup> . 4629 <sup>‡</sup> . 4609 . 7350	2 2 4	d' 164 to e' 324 °C d g/ml v <sub>c</sub> ml/g t <sub>c</sub> °C	62.59	5		29.76	5
n <sub>D</sub> 20°C 1 25 30 1 "C" 0  MR (Obs.) 148  MR (Calc.) 147 (nD-d/2) 1  Dielectric  A   324 to B   595 °C   67  C	4629 <sup>‡</sup> 4609 7350 41 <sup>‡</sup>	2 4 4	e'   324 °C  d g/ml vc ml/g tc °C		15	30	28.83	5
25 1 30 1  "C" 0  MR (Obs.) 148  MR (Calc.) 147  (nD-d/2) 147  Dielectric  A 324 to 2607  A* 324 to 18* 565 °C 2495  K c to to Table 164 to B' 324 °C 2755  Ac 164 to Bc tc °C Cc — Cc °C Cc °C Cc °C Cryos. A°	4629 <sup>‡</sup> 4609 7350 41 <sup>‡</sup>	2 4 4	t <sub>c</sub> *C		i	40	27.92	5
30 1 "C" 0  MR (Obs.) 148  MR (Calc.) (10D-d/2) 1  Dielectric  A   324 to B   595 °C   2607  C	. 4609 . 7350 . 41 <sup>≠</sup>	4	t <sub>c</sub> *C	1		Parachor [P] 20°C		1
"C" 0  MR (Obs.) 148  MR (Calc.) 147  (nD-d/2) 1  Dielectric  A   324 to B   595 °C   2607  C   147  A*   324 to B*   565 °C   2495  K   C   C   C   C   C   C   C   C   C	.7350 .41 <sup>‡</sup>	4	6 -	1	1 .	30		1
MR (Obs.) 148 MR (Calc.) 147 (nD-d/2) 1 Dielectric A   324 to B   595 °C   2495 C	41 <sup>#</sup>	+	P <sub>c</sub> mm	595.	5	40		Į.
MR (Calc.) 147 (nD-d/2) 1  Dielectric  A   324 to B   595 °C   267   147  A*  324 to B*  565 °C   2495  K				3155.	5	Sugd	1254.1	5
Dielectric  A   324 to B   595 °C   2607 C   147  Ae  324 to B   565 °C   2495  K c to to to Table   60	.116 .	4	PV/RT	1 0000	ا ۔ ا	Exp. L.1.%/wt.	ļ	1
A   324 to   7   2607 C   2495 K   1595 °C   2495 K   164 to   249	0469≠	2	164°C 30 mm	1.0000	5	u. Dispersion	98.≠	2
B   595 °C   2607 C   147			BP	0.9065	5	Flash Point *C	<del>  70.</del>	+-
C 147  A*  324 to 1  B*  565 °C 2495  C t to c to to c t to c to c to c to c t	01345	5	t <sub>e</sub>	0.8640	5	Fire Point		1
A*  324 to B*  565 °C K  c tk   to tx   °C  A1   164 to B1   324 °C  A1*  164 to B1*  324 °C  A1*  164 to B1*  324 °C  A1*  164 to B1*  324 °C  CTyos. A*		5	L c			M. Spec.	<del> </del>	+
B* 565 °C 2495  c to to  tk   c C C C C C C C C C C C C C C C C C C		5	ΔHc kcal/m ΔHf			Ultra V.		1
K to to to tk To to tk To To To To To To To To To To To To To	. 85585 2	5	ΔFf		1	X-Ray Dif.		
tk to to to tk to to tk to to tk to to tk to to tk to to tk to tc to tk tk to tk tk to tk tk tk tk tk tk tk tk tk tk tk tk tk	. ,	"	Viscosity	<u> </u>		Infrared		∔
X   C   7   7   164 to   7   164 to   7   167			centistokes			Solubility in Acetone		1
A'   164 to 7 B'   324 °C 2953 C' - 167 A'*164 to 2 B'* 324 °C 2755 Ac to bc tc °C Cc - C Cryos. A°			∥າ •c			Carbon tet.		1
B' 324 °C 2953 C' 167 A'*164 to 2 B'* 324 °C 2755 Acl to Bc <sub>L</sub> t <sub>C</sub> °C Cc — C	553/3	1	1	1		Benzene	1	Ī
C' 167  A'*164 to 2 B'*324 °C 2755  Acl to Bc tc °C Cc Cc Cc Cc Cc Cryos. A°	. 55267 9	5				Ether n-Heptane		
B'* 324 °C 2755  Acl to Bc t <sub>c</sub> °C Cc  Cryos. A°		5	B <sup>V</sup>	1		Ethanol	1	
B'* 324 °C 2755  Acl to Bc t <sub>c</sub> °C Cc  Cryos. A°	17073	5		_[		Water		
Bc tc °C Cc Cryos. A°	. 8	5	(B <sup>V</sup> )  to		1	Water in	<del> </del>	┼
Cryos. A°			(A <sup>V</sup> )  °C	1				
Cryos. A°		1	c <sub>p</sub> liq. •K		T	1		
		╁	-{I -					
			c <sub>p</sub> vap. *K					İ
t <sub>e</sub> °C 555		5	c <sub>v</sub> vap.	1	<u></u>	<u> </u>	<u> </u>	
# for undercoole	d liani					grams/100 gra		<u>nt</u>
REFERENCES:				Calc, from de	et. da	ta 5-Calc, by for	rmula	
SOURCE:			PI					
PURIFICATION:			PI					
LITERATURE R	-Dow		S:					

No. 36 n-Heptacosylcyclohexane STRUCTURAL FORMULA NAME CH C27H55 1-Cyclohexylheptacosane H2C CH2 Molecular C33H66 Mole Molecular Ref. % Pur Weight 462.858 Ref. Ref. 66.1 2 dt/dP f to F.P. 100% °C/mm g <u>•ĸ</u> 168°C 394.1 B. P. °C h 0.08818 BP 760 mm 492. 2 0.04133 5 ſ١ ŧ, to 100 380. 5. g¹ °K 330. 30 5 30 mm 1.2450 5 5 10 292. h' ∆Hm cal/g 229. m to AHv cal/g Pressure °K n 168°C 51,48 mm168°C 0.04119 ٥ 30 mm 41.86 5 t<sub>e</sub> 2011.8 BP 5 33.46 to Density te (d, e) 29.86 5 g/ml 20°C n' •ĸ 0.8365 29.68 5 ٥' 25 0.8332 2  $d_4^t$ AHV/T 16.50 5 30 0.8299 4 Surface tension 330 59.02 5 0.8497 29.83 5 dynes/cm. 20°C e <u> 1 56</u>5, •c 0.0520 5 ь -0.0366 4 30 28.90 5 €.C | 168 61.46 40 27.99 5 Ref. Index e¹ 1 330 0.0594 20°C 1.4653 [P] 2  $n_{D}$ Parachor dc g/ml vc ml/g tc °C 25 1.4633 20°C 30 1.4613 4 30 5 599. 40 "C" 0.7350 4 P<sub>c</sub> mm 2983. 5 Sugd. 1293.1 5 153.05≠ MR (Obs.) 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 152, 394 168°C 1,0000 5 1.0470≠ (nD-d/2)30 mm 1.0000 98.≠ 2 Dispersion Dielectric BP 0.9061 5 Flash Point °C te 0.8630 5 A 330 to Fire Point 7.01513 5 tc 2637.7 <u> 599 °C</u> M Spec. C 146. 5 AHc kcal/m Ultra V. ΔHf A\* 330 to 1,86691 5 X-Ray Dif. ΔFf B\* 575 °C 2524.3 Infrared ĸ Viscosity Solubility in c centistokes Acetone to t<sub>k</sub> | Carbon tet. •c Benzene A' | 168 to 7,55018 Ether 2984.4 \_330 °C n-Heptane вŸ 5 166. to Ethanol ĀV I °C Water A1# 168 to 2.18799 5 Water in B'# 330 °C 2788.0 (BV) to Ac to (AV) °C Bc •c cp liq. ۰ĸ Cc Cryos. A\* cp vap. •ĸ consts. B. c, vap. t<sub>e</sub> °C 564.67 # for undercooled liquid grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

NAME	n-Octacos	vlcvc	lohexane		$\neg$	STRUCTURAL	FORMILL			
MAME	1-Cyclohe				$\neg$	CH C28 H57 H2Ç ÇH2				
	<del></del>						12			
Mole/ % Pur.	Ref. Mo	lecul rmuk		Molecular Veight 476.88	34	H2Č ČH2 CH2	12			
		Ref.		ľ	Ref.			Ref		
F, P, °C	68.0	2	dt/dP			f to		İ		
F.P. 100%			°C/mm		_	g•K				
B. P. °C	400		173°C BP	386.4 0.08885	5 4	h				
760 mm 100	499. 386.	5	te	0.04141	5	f' to				
30	336.	5	30 mm	1.2546	5	g' <u>*K</u>		1		
10 1	298. 234.	5	∆Hm cal/g			h' i		ļ		
Pressure	+	一	ΔHv cal/g			m to				
mm 173°C		5	173°C 30 mm	50.55 41.09	5	<u>-</u> -				
t <sub>e</sub>	2026.9	5	BP	32.76	5	m' to		╁		
Density	0.8370	١.	t <sub>e</sub> ,	29.16	5	m' to				
g/ml 20°C	0.8337	2 2	te (d, e)	28.98	5	0'				
d <sub>4</sub> 25	0.8304	4	ΔHv/T <sub>e</sub>	16.43	5	Surface tension		+-		
	0.8502	4	d 336 to	58.28 0.0511	5	dynes/cm. 20°C	29.88	5		
ь	-0.0366	4	di 173 to	60.59	5	30	28.95	5		
Ref. Index		١.	e'   336 °C	0.0580	5	40	28.04	5		
<sup>n</sup> D 20°C	1.4656 <sup>#</sup> 1.4636 <sup>#</sup>	2 2	d <sub>c</sub> g/ml			Parachor [P] 20°C				
30	1.4616	4	v_mi/g	601.	5	30				
"C"	0.7350	4	tc °C Pc mm	2799.	5	40 Sugal	1332.1	5		
MR (Obs.)		2	PV/RT	2177.	Ļ	Exp. L.1.%/wt.	1332.1	+-		
MR (Calc. (nD-d/2)	)  157.012   1.0471≠	4	173°C	1.0000	5	u.		1		
	1.04717	2	30 mm	1.0000	5	Dispersion	98.≠	2		
Dielectric	7 01/11	+-	BP t <sub>e</sub>	0.9048 0.8611	5	Flash Point C		T		
A 336 to B 601 °C		5	t e			Fire Point		↓		
c	144.	5	AHc kcal/m			M. Spec. Ultra V.				
A* 336 to	1.87979		ΔHf ΔFf			X-Ray Dif.				
B*[583 °C	_ 2546.2	5	Viscosity	<del> </del>	$\vdash$	Infrared		↓		
c	_ 1		centistokes			Solubility in +				
t <sub>k</sub> to		1	η •c		l	Acetone Carbon tet.		1		
A'   173 to	_l	+-				Benzene		İ		
B' 336 °C		5			↓	Ether n-Heptane		1		
C'	164.	5	B <sup>V</sup> to A <sup>V</sup> C			Ethanol				
A**173 to		5			1	Water Water in				
B'+336 •C		5	(B <sup>V</sup> )  to			Water III		+		
Ac to		!	(A <sup>V</sup> )  °C	ļ	ــــ	4				
C. C.	-	1	c <sub>p</sub> liq. °K							
Cryos. A			c <sub>p</sub> vap. *K							
te °C	572.85	5	c vap.							
	rcooled liquid		ш	I	<u> </u>	grams/100 gran	ms solve	 nt		
REFEREN	CES: 1-Dow	2-A	PI 3-Lit. 4-	Calc. from de	et. da	ata 5-Calc. by for				
SOURCE:		A	PI							
PURIFICA	TION:	A	PI							
LITERATU	RE REFERE	NCE	S:							

No. 38 STRUCTURAL FORMULA NAME n-Nonacosylcyclohexane CH C29H59 CH2 l-Cyclohexylnonacosane H<sub>2</sub>C CH5 CH5 Molecular C35H70 HŧĊ Mole Ref. Molecular Weight 490.910 % Pur. Ref. Ref Ref. F.P. C F.P. 100% 69.9 2 dt/dP f to °C/mm •ĸ g 177°C 401.8 B. P. °C h BP 0.08978 760 mm 507. 2 ſ 0.04153 5 100 to 393. 5 g' •K 30 342. 5 30 mm 1,2680 5 10 304. h' ∆Hm cal/g 239. to ΔHv cal/g m Pressure •ĸ n 177°C 49.61 5 5 mm177°C 0.04116 o 30 mm 40.32 2046.7 BP 32, 12 5 to Density m' ١ 5 te (d, e) 28,54 •ĸ g/ml 20°C 'n 5 0.8374 2 28.36 25 30 01 0.8342 d4 2 16.37 5 AHv/Te 0.8310 4 Surface tension 342 57.36 5 to 0.8502 -0.0364 29.92 a b 4 dynes/cm. 20°C 5 592 177 •c 0.0498 59.58 5 4 30 29.02 5 ă٠ to ı 40 28.13 • Ref. Index 0,0563 342 ·c 5 1.4659 20°C 2 Parachor [P]  $\mathbf{n}_{\mathbf{D}}$ d<sub>c</sub> g/ml 25 1.4640# 20°C c ml/g 30 1.4620 4 30 t<sub>c</sub> 608. 5 40 "C" 0.7350 4 Рç 2737. 5 mm Sugd. 1371.1 5 MR (Obs.) 162.33# 2 PV/RT Exp. L.1.%/wt. 161.630 MR (Calc.) (nD-d/2) 177°C 1.0000 5 1.0472 2 30 mm 98.≠ 1,0000 5 Dispersion 2 Dielectric BP 0.9041 Flash Point °C 0.8597 A 342 to 7.01788 Fire Point ŧç B 608 °C 2689.1 M Spec. Ultra V. C 143. AHc kcal/m ΔHf A\* | 342 to 1.89083 5 X-Ray Dif. ΔFf B+ \_592 °C 2575.6 Infrared Viscosity Solubility in centistokes Acetone to ·c Carbon tet Bensene A' | 177 to 7.54310 Ether 3035.7 B! ∟342 °C n-Heptane C' 163. 5 to Ethanol ÃV İ •c A'+ 177 to Water 2.20299 (BV) Water in B'+ 342 °C 2837.6 to (AV) Ac| •c •c Bc cp liq. •ĸ Cc Cryos. A. c<sub>p</sub> vap. •ĸ consts. B° c, vap. te °C 582,45 5 ≠ for undercooled liquid grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula API SOURCE: PURIFICATION: API LITERATURE REFERENCES:

NAME	n-Triacont	ylcyc	lohexane		STRUCTURAL FORMULA				
	1-Cyclohe	xyltr	iacontane			н₅с, с Сно	C30 Hei		
Mole % Pur.	Ref. Mo	lecul	C <sub>36</sub> H <sub>72</sub>	Molecular Weight 504.93	36	HEC. CHE			
		Ref.	•	T	Ref.			Ref.	
F. P. *C	71.6	2	dt/dP			f to			
F.P. 100	6		°C/mm	1	_	g• <u>K</u>			
B. P. *C			182°C BP	394.5 0.09044	5 4	h			
760 mm	514. 399.	2 5	t	0.04157	5	f' to			
30	348.	5	30 mm	1.2776	5	g' <u>*K</u>			
10	309. 244.	5	ΔHm cal/g		Γ	h'		$\Box$	
Pressure	1	1	ΔHv cal/g			m to			
mm182°0	0.04237	5	182°C 30 mm	48.79 39.64	5 5	" <del>-</del>			
t <sub>e</sub>	2063.6	5	BP	31.51	5	m' to		-	
Density			t <sub>0</sub>	27.89	5	m' to			
g/ml 20°	0.8379 <sup>#</sup> 0.8346 <sup>#</sup>	2 2	· (a, e)	27.75	5	0'			
dt 25 4 30	0.8313	4	ΔHv/T <sub>e</sub>	16.30	5	Surface tension			
	0.8511	4	d 348 to	56.69 0.0490	5	dynes/cm. 20°C	29.98	5	
ь	-0.0366	4	d' 182 to	58.82	5	30 40	29.05 28.13	5	
Ref. Inde		2	e'   348 °C	0.0551	5	Parachor [P]	20.13	-	
n <sub>D</sub> 20°	1.4643*	2	d <sub>c</sub> g/ml	1		20°C			
30	1.4622	4	vc ml/g tc °C	617.	5	30			
"C"	0.7350	4	P <sub>c</sub> mm	2774.	5	40 Sugd,	1410.1	5	
MR (Obs.		2	PV/RT		-	Exp. L.1.%/wt.		-	
MR (Calc (nD-d/2)	.) 166.248 1.0473 <sup>‡</sup>	2	182°C	1.0000	5	u.	,		
Dielectric		$\vdash$	30 mm BP	1.0000 0.9034	5	Dispersion	98.≠	2	
A 348 to	7.01928	5	t	0.8586	5	Flash Point *C Fire Point			
B 617 °C	2710.7	5	<sup>t</sup> c		ļ	M. Spec.		-	
C	141.	5	ΔHc kcal/m ΔHf	1		Ultra V			
A*  348 to B*  600 °		5	ΔFf	1	l	X-Ray Dif. Infrared			
ĸ	=		Viscosity			Solubility in +		-	
t <sub>1</sub>   - t <sub>1</sub>	<del>-</del>		centistokes	1		Acetone			
ik i			7			Carbon tet. Benzene			
A'   182 to		5				Ether			
B'   348 °		5	B <sub>v</sub> to	<u> </u>	+	n-Heptane			
	161.	-	B to		1	Ethanol Water			
A'* 182 to B'* 348 *		5	(B <sup>V</sup> ) to	-	i	Water in			
Ac t	•		(A <sup>V</sup> )  °C						
Bc tc	<u> </u>		c <sub>p</sub> liq. •K	1	<b>†</b>	1			
Crme		-	l.						
Cryos, A consts. B			c <sub>p</sub> vap. *K						
t <sub>e</sub> °C	590.70	5	c <sub>v</sub> vap.	1	1			L	
# for und	ercooled liquid	l				†grams/100 gra	ms solven	t	
	ICES: 1-Dow			Calc, from de	t. da	ta 5-Calc. by for	mula		
SOURCE:			PI						
PURIFICA			PI						
LITERAT	URE REFERE	NCE	5:						
]									

No. 40 STRUCTURAL FORMULA NAME n-Hentriacontylcyclohexane CH C31 H63 l-Cyclohexylhentriacontane CH5 CH5 Molecular C37H74 HzĊ Molecular Mole Ref. Weight 518,962 % Pur. Ref Ref Ref. F.P. °C 73.3 2 dt/dP to °C/mm <u>•ĸ</u> g 186°C 387.2 B. P. \*C 0.09111 BP 760 mm 520. 2 5 ſ 0.04164 to 100 404. 5 g' ۰ĸ 30 353. 5 30 mm 1.2872 5 10 314. þ, AHm cal/g 248. 5 1 to AHv cal/g Pressure •ĸ 186°C 47.79 mm186°C 0.04363 30 mm 38.87 5 2078.8 5 te BP 30.88 to Density g/ml 20°C m¹ te te (d, e) 27.30 5 •ĸ 'n 0.8383 2 27.16 5 01  $\mathbf{d_4^t}$ 25 0.8351 2 ΔHv/Te 5 16.26 30 0.8319 4 Surface tension 1 353 to 55.73 5 a, 1 598 0.8511 dynes/cm. 20°C 30,02 0.4779 57.72 5 Ъ -0.0364 4 30 5 29.12 28.23 186 to 40 e' Ref. Index 353 0.0534  $\mathbf{n}_{\mathbf{D}}$ 20°C 1.46657 2 [P] d g/ml vc ml/g tc °C Parachor 1.4645 25 2 20°C 30 1.426 4 30 622. 5 40 "C" 0.7351 4 P<sub>c</sub> mm 5 2722. Sugd. 449.1 5 171.61\* MR (Obs.) 2 PV/RT Exp. L.1. %/wt. MR (Calc.) 170.866 186°C 1.0000 5 1.0473<sup>#</sup> (D-d/2) 2 30 mm 1.0000 98. # Dispersion 2 Dielectric BP 0.9030 Flash Point °C 0.8577 353 to 7.02020 2732.0 t<sub>e</sub> Fire Point tc B 1622\_°C M Spec. 5 С 140. AHc kcal/m Ultra V ΔHf A\*|353 to 1.91253 X-Ray Dif. ΔFf 2618.0 B\* 608 °C Infrared Viscosity Solubility in centistokes Acetone to •c Carbon tet. Benzene A' 186 to 7.53433 Ether B' (353 3077.5 <u>.c</u> n-Heptane B<sup>V</sup> | C' 160. to Ethanol A'+ 186 •c Water 2.20037 (BV) Water in B1# 353 •c 2872.6 to Ac | to •c BcL •c c<sub>p</sub> liq. •ĸ Cc Cryos. A\* c<sub>p</sub> vap. consts. B° c, vap. te .C 597.90 5 for undercooled liquid grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det, data 5-Calc. by formula SOURCE: API **PURIFICATION:** API LITERATURE REFERENCES:

				<del></del>					No. 41		
NAME _	n-Dot	riaco	ntylo	yclohexane			STRUCTURAL FORMULA				
	1-Cyc	lohex	cyldo	triacontane				н₂Ç Сн (	C32 H65		
	2.4				M-1				Hg		
Mole % Pur.	Ref.		lecul: mula		Molecular Weight 532.9	88		CH2			
			Ref.		T	Ref.	<u> </u>	<del></del>	*****	Ref.	
F. P. *C	74.8		2	dt/dP			í	to		$\Box$	
F.P. 100%				°C/mm			g	* <u>K</u>	1		
B. P. *C			١. ١	189°C <b>B</b> P	412.2 0.09191	5	h				
760 mm	527. 410.		5	te	0.04172	5	f'	to			
30	358.		5	30 mm	1.2987	5	g'	' <u>*K</u>			
10	319. 253.		5	ΔHm cal/g			h'			1	
Pressure	<del>                                     </del>		Н	ΔHv cal/g			m n	to •K			
mm 189°C		1110	5	189°C	47.01 38.17	5		<del>"</del>			
t <sub>e</sub>	2097.2		5	BP	30.30	5	m'	to		+	
Density g/ml 20°C	0.8	388≠	2	t <sub>e</sub> (d, e)	26.68 26.59	5	n'	*K_			
at 25	0.83	355₹	2	ΔHv/T	16.17	5	٥'				
	0.8		4	d 358 to	54.91	5		face tension			
a b	-0.0		4 4	e 1606 °C	0.0467	5	dyn	es/cm. 20°C 30 \	30.08 29.15	5	
Ref. Index	1	,	屵┤	d' 189 to e' 358 °C	56.90 0.0523	5		40	28.23	5	
n <sub>D</sub> 20°C		668 <b>‡</b>	2		0.0323	+-	Par	achor [P]			
25 30	1.40	648 <sup>≠</sup> 628	2 4	d <sub>c</sub> g/ml v <sub>c</sub> ml/g t <sub>c</sub> °C				20°C 30			
"C"	0.7		4	tc *C	621.	5		40			
MR (Obs.)	176.2		2	P <sub>c</sub> mm	2471.	5	<b> </b>		1488.1	5	
MR (Calc.)	175.48	34	4	PV/RT 189°C	1.0000	5	Exp	. L.1.%/wt.			
(nD-d/2)	1.04	474 <sup>‡</sup>	2	30 mm	1.0000	5	Dis	u. persion	98.≠	2	
Dielectric	ļ			BP	0.9027 0.8570	5	Fla	sh Point C		1	
A 358 to B 621 °C	7.07	2150	5 5	te tc	0.8370	'	Fir	e Point		↓	
c '	139.		5	AHc kcal/m	<del>                                     </del>	T		Spec. ra V.		1	
A* 358 to		2198	5	ΔHf ΔFf			X-I	Ray Dif.			
B*[616 °C	2642.9		5	Viscosity	<del> </del>	+-	<b>├</b> ──	ared			
c				centistokes		1		ubility in Technical	1		
t <sub>k</sub> to				η °c	Ì		Ca	rbon tet.			
A'   189 to	7.5	3416	5					nzene her			
B' 358 °C	3104.3		5	- V I	<del> </del>	+		Heptane		Ì	
C'	159.		5	B <sup>v</sup> to A °C	1			hanol ater			
A'*189 to B'*358 °C	2.2	2516	5	$\frac{1}{(\mathbf{B}^{v})^{l}} - \frac{c}{to}$	-			ater in			
Acl to	1		+	(A <sup>V</sup> )  °C						1	
Bc tc C					<del> </del>	+	1				
Cc — —	<del></del>		$\sqcup$	Р.			l				
Cryos. A° consts. B°				c <sub>p</sub> vap. *K							
t <sub>e</sub> °C	606.3		5	c <sub>v</sub> vap.		<u> </u>	<u> </u>		<u> </u>		
# for unde								rams/100 gra		nt	
	ES: 1-I	)ow		PI 3-Lit. 4-	Calc. from de	et. da	ata 5	-Calc. by for	mula		
SOURCE:		_		PI 							
LITERATU		ERF		PI S.							

STRUCTURAL FORMULA NAME n-Tritriacontylcyclohexane 1-Cyclohexyltritriacontane CHC33He7 HEG CHE Molecular Ref. Mole Molecular C39H78 Weight 547.014 % Pur Formula Ref Ref Ref. 76.3 F.P. °C F.P. 100% dt/dP f to \*C/mm 193\*C •ĸ 2 404.9 B. P. \*C Þ BP 0.09257 760 mm 533. 2 0.04185 5 ſ١ 100 to 415. 5 2 •K 30 5 30 mm 1.3082 5 363. 10 323. 5 'n AHm cal/g 257. 5 to AHv cal/g m Pressure •ĸ n 193°C 46.12 mm 193°C 0.04228 o 30 mm 37.48 5 2107.9 t. 5 BP 29.69 5 Density g/ml 20°C to m' t<sub>e</sub> (d, e) 5 26. 11 0.8391 0.8359 •K n' 26,00 ď 2  $\mathbf{d_4^t}$ 25 AHV/T 5 16.11 30 0.8327 4 363 to 613 °C 193 to Surface tension 54.15 0.8519 dynes/cm. 20°C 8 30.11 5 5 0.0459 Ъ -0.0364 4 30 29.20 5 55.93 40 28.32 •' Ref. Index 363 °C 0.0508 1.4670 **a**D 20°C 2 [P] d<sub>c</sub> g/ml Parachor 1.4651 25 20°C Y<sub>c</sub> ml/g 30 1.4631 4 30 •c 626. 5 ŧċ 40 "C" 0.7352 4 P P<sub>c</sub> mm mm 2427. 5 Sugd 1527.1 5 MR (Obs.) 180.89# 2 Exp. L. 1. %/wt. MR (Calc.) 180, 102 193°C 1.0475 1.0000 (D-d/2) 2 98. ≠ 30 mm 1,0000 Dispersion 2 Dielectric BP 0.9009 5 Flash Point °C 0.8546 7.02283 363 to Fire Point 2779.3 B 626 °C M Spec. Ultra V 5 138. С ΔHc kcal/m ΔHſ A\* 363 to 1.93473 5 X-Ray Dif. A F f 2665.3 B+ 623 °C Infrared Viscosity Solubility in centistokes Acetone to ě Carbon tet. Bensene A' 193 to 7.53018 Ether B' (363 °C 3125.3 n-Heptane C B<sup>V</sup> I 158. to Ethanol 2.22396 •c Water A1#193 to 5 (BV) Water in B'\* 363 ·c to Ac | to  $(A^{V})_{1}$ •c Bc ·c c<sub>p</sub> liq. •ĸ Cc Cryos. A. c<sub>p</sub> vap. consts, B° t. C c, vap. 613.37 5 # for undercooled liquid grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

NAME	n-Tetratri	a c ont	ylcyclohexane		STRUCTURAL FORMULA				
	1-Cyclohe:	kyltet	ratriacontane			н₂Ç СНС	34 H69		
Mole % Pur.	Ref. Mo	lecul	C40H80	Molecular Weight 561.0	40	1 1	Hg		
		Ref.		I	Ref.			Ref.	
F, P. *C	77.7	2	dt/dP			f to			
F.P. 1007			°C/mm			g  • <u>K</u>			
B. P. *C		1.	198°C BP	397.9 0.09323	5 4	h			
760 mm	540. 421.	2 5	t	0.04189	5	f' to			
30	369.	5	30 mm	1.3178	5	g' <u>K</u>			
10	329. 262.	5	ΔHm cal/g			h'			
Pressure	1	+	ΔHv cal/g			m to			
mm 198°C			198°C 30 mm	45.46	5	" ' <u>-</u> -			
t <sub>e</sub>	2124.9	5	BP BP	36.94 29.21	5	m' to		$\vdash$	
Density	0.8395	,	t <sub>e</sub>	25.61	5	m' to			
g/ml 20°0	0.8363		t <sub>e</sub> (a, e)	25.52	5	0'			
d <sub>4</sub> 30	0,8331	4	ΔHv/T <sub>e</sub>	16.06	5	Surface tension		$\vdash$	
	0.8523	4	d 369 to e 622 °C	53.62 0.0452	5	dynes/cm. 20°C	30.16	5	
ь	-0.0364	4	a 198 to	55.32	5	30 40	29. 25 28. 36	5	
n <sub>D</sub> 20°C		2	e'   369 °C	0.0498	5	· · · · · · · · · · · · · · · · · · ·	20.30		
<sup>n</sup> D 20°C	1.4653	2	d <sub>c</sub> g/ml			Parachor [P] 20°C			
30	1.4634	4	vc ml/g tc °C	628.	5	30			
"C"	0.7354	4	P <sub>c</sub> mm	2281.	5	40 Sugd.	1566.1	5	
MR (Obs.) MR (Calc.		2	PV/RT		$\vdash$	Exp. L.1.%/wt.		М	
(nD-d/2)	1.0475		198°C 30 mm	1.0000	5	u.	#	1.1	
Dielectric	<del></del>		BP BP	1.0000 0.9002	5	Dispersion	98.≠	2	
A 369 to	7,02415	5	t <sub>e</sub>	0.8535	5	Flash Point *C Fire Point			
B 1 628 °C	2800.9	5	t <sup>e</sup> c	<b></b>	<u> </u>	M. Spec.		$\vdash$	
A*  369 to	136.	5	ΔHc kcal/m ΔHf			Ultra V.			
B* 632 °C		5	ΔFf	L		X-Ray Dif. Infrared			
к	<b>-</b>		Viscosity	1		Solubility in +		$\vdash$	
t <sub>k</sub>   -tō	-		centistokes り *C			Acetone			
<u>\$</u> •0	: ]		<b>'</b>			Carbon tet. Benzene			
A'   198 to		5		i		Ether			
B' 1369 °C	156.	5	B <sub>v</sub> to			n-Heptane Ethanol			
A'* 198 to	2.22222	5	A'   "C	1		Water			
B'* 369 °C	2939.3	5	(B <sup>V</sup> )  to	1		Water in		-	
Ac to			(A <sup>V</sup> )  °C		L				
Bc tc C	<u>-</u>		c <sub>p</sub> liq. •K	1					
Cryos. A consts. B			c <sub>p</sub> vap. *K	l .					
te °C	621.65	5	c <sub>v</sub> vap.	]					
	ercooled liqui	d				grams/100 gra	ms solver	it	
REFEREN	CES: 1-Dow	2-A	PI 3-Lit. 4-	Calc, from de	t. da	ta 5-Calc. by for	mula		
SOURCE:		A	PI						
PURIFICA			PI						
LITERATU	RE REFERE	NCE	5:						
1									
								4	

No. 44 n-Pentatriacontylcyclohexane STRUCTURAL FORMULA NAME CHC35 H71 1-Cyclohexylpentatriacontane H2C CH2 Molecular C41H82 Molecular Mole Ref. Weight 575,066 % Pur Ref Ref. 79.1 F, P. \*C 2 dt/dP f to F.P. 100% °C/mm g <u>•</u>K 202°C 391.1 B. P. \*C h BP 0.09389 760 mm 546. 2 f 0.04189 5 to 100 427. 5 ŧ, g' °K 30 374. 5 30 mm 1.3273 5 10 333. h' ∆Hm cal/g 266. 5 to ΔHv cal/g m Pressure •K n 202°C 44.65 mm 202°C 0.04468 o 30 mm 36.32 5 te 2144.2 ВP 5 28,72 m' 1 Density g/ml 20°C te te (d, e) 25.09 5 n' •ĸ 0.8399# 5 2 25.06 0.8366# ۰, 25  $d_4^t$ AHV/T 5 15.99 0.8333 30 4 Surface tension 1 374 52.80 5 0.8531 dynes/cm. 20°C 30.20 1 629 1 202 •c 0.0441 5 e -0.0366 ь 4 30 29.26 5 •c 54.43 40 28.35 Ref. Index e' 374 0.0484 5 1.4675 20°C [P] <sup>n</sup>D Parachor d<sub>c</sub> g/ml 25 1.4656 2 20°C vc ml/g 30 1.4637 4 30 627. 5 40 "C" 0.7353 4  $P_c$  mm 2096. 5 Sugd. 1605.1 5 MR (Obs.) 190.17<sup>‡</sup> 2 PV/RT Exp. L. 1. %/wt. MR (Calc.) (nD-d/2) 189.338 1.0000 202°C 5 1.0476# u. 2 30 mm 1,0000 5 Dispersion 98.≠ 2 Dielectric BP 0.9011 Flash Point °C t<sub>e</sub> 0.8542 A 374 to 7,02545 Fire Point tc B 1 627 °C 2822.5 M Spec. Ultra V. C 135. 5 AHc kcal/m ΔHf A\* 374 to 1.95188 5 X-Ray Dif. ΔFí B\* 639 °C 2706.8 Infrared ĸ Viscosity Solubility in c centistokes Acetone to t | Carbon tet. •c Benzene A' 202 to 7.52250 Ether 3167.5 <u> 374 °C</u> n-Heptane  $\mathbf{B}^{\widetilde{\mathbf{v}}}$ 155. 5 Ethanol Ã۷ •c Water A1# 202 to 2.22064 Water in B'# 374 °C (BV) 2956.9 to Ac (A<sup>V</sup>) to °C Bc |\_ •c \_tc\_\_ liq. ۰ĸ Сp Сc Cryos. A\* c<sub>p</sub> vap. •ĸ consts. B° c, vap. t<sub>e</sub> °C 629.04 ≠ for undercooled liquid grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API **PURIFICATION:** API LITERATURE REFERENCES:

NAME	n-Hexatria	conty	lcyclohexane			STRUCTURAL FORMULA				
	l-Cyclohex	ylhex	atriacontane			нас снс Снс	36 H73 12			
Mole % Pur.	Ref. Mo	lecul:		Molecular Weight 589.0	92	H2C CH2				
		Ref.			Ref.			Ref.		
F. P. *C	80.4	2	dt/dP			f to				
F.P. 1009	•		°C/mm	1		g  *K				
B. P. *C			205°C	393.8	5	h				
760 mm	551.	2	<b>B</b> P	0.09442	5					
100	431.	5	t <sub>e</sub>	0.04198	1 1	g' to				
30 10	378. 337.	5	30 mm	1.3350	5	h'		1 1		
i	269.	5	∆Hm cal/g			<del></del>		$\vdash$		
Pressure			ΔHv cal/g			m to		1		
mm 205°C		5	205°C 30 mm	43.89	5	<u> </u>				
te	2154.0	5	BP	35.69 28.18	5			-		
Density			t.	24.59	5	m' to				
g/m1 20°0		2	te (d, e)	24.54	5	n'   L _ <u>*K</u>				
dt 25	0.8370	2	ΔHv/T <sub>e</sub>	15.95	5			1		
	0.8338	4	d 378 to	52.06	5	Surface tension				
a b	0.8530 -0.0 <sub>3</sub> 64	4	_e <u>  635</u> °C	0.0433	5	dynes/cm. 20°C	30.24 29.32	5		
	<del></del>	1	d 205 to	53.61	5	40	28.43	5		
Ref. Index		2	e'   378 °C	0.0474	5	Parachor [P]		+		
D 25	1.4658#	2	d <sub>c</sub> g/ml		1	20°C				
30	1.4644	4	vc ml/g t *C	631.	5	30				
"C"	0.7356	4	-	i	5	40 Sund	1644 1	5		
MR (Obs.	194.81≠	2	P <sub>c</sub> mm	2062.			1644.1	) )		
MR (Calc.		4	PV/RT 205°C	1.0000	5	Exp. L.1.%/wt.				
(nD-d/2)	1.0476≠	2	30 mm	1.0000	5	Dispersion	98. <del>*</del>	2		
Dielectric			BP	0.8999	5	Flash Point C		+		
A 378 to		5	t <sub>e</sub>	0.8525	5	Fire Point				
B 1631 °C		5	t <sup>e</sup> c	<b></b>	-	M. Spec.		_		
	134.	+	ΔHc kcal/m ΔHf			Ultra V.				
A* 378 to B* 645 °C		5	ΔFf			X-Ray Dif. Infrared				
K	-		Viscosity			l		┼		
;,=	_		centistokes			Solubility in Acetone				
t <sub>k</sub> to			∥າ •c			Carbon tet.				
A'   205 to		5		l		Benzene				
B' 378 °C		5	ļ		↓	Ether n-Heptane				
	154.	5	B <sub>v</sub> to			Ethanol		İ		
A1+205 to	2,22836	5	By to			Water				
B'*378 °C	2973.6	5	(B <sup>V</sup> )  to			Water in				
Acl to			(A <sup>V</sup> )  °C			]		1		
Bc tc C	_		c <sub>p</sub> liq. °K							
Cryos. A'			c <sub>p</sub> vap. °K							
t <sub>e</sub> °C	634.92	5	c <sub>v</sub> vap.							
	ercooled liqui	1				grams/100 gran	ms solve	nt		
REFEREN	CES: 1-Dow	2-A	PI 3-Lit. 4-	Calc. from de	et. da	ta 5-Calc. by for	mula			
SOURCE:		A	PI							
PURIFICA	TION:	A	PI							
LITERATU	JRE REFERE	NCE	S:							

No. 46 Y -Hexachlorocyclohexane STRUCTURAL FORMULA NAME CIHÇ CHCI Y-Hexane CHCI Molecular C6H6C16 Mole Ref. Molecular Weight 290,850 % Pur. 99.84 Ref. Ref. Ref. F.P. C F.P. 100% 112,50 ı dt/dP to °C/mm <u>•K</u> g 113°C 42,855 5 B. P. \*C h 0.06551 BP 4 760 mm 323.4 0.03746 5 f to 100 240.5 4 g' <u>•</u>K 30 30 mm 204.0 4 0.9143 4 5 10 176.2 h' ΔHm cal/g 66.60 4 5 130. to m AHv cal/g Pressure •ĸ 113°C 66.0 n 0.3601 mm113°C 5 o 30 mm 56.71 5 t, 1561.0 5 BP 44.75 5 to Density g/ml 20°C m 5 41.65 t t (d, e) •ĸ n' 5 40,85 ٥' ď4 AHv/T 19.06 5 30 Surface tension d 1 205 77.14 5 to dynes/cm. 20°C 5 350 •c 0.1002 ď٠ ī īīš 30 77.54 to 40 Ref. Index •' 205 0.1021 5 20°C [P] n<sub>D</sub> Parachor d g/ml vc ml/g 25 20°C 30 30 •c tc 40 "C"  $P_c$  mm 5 Sugd. 463.3 MR (Obs.) PV/RT Exp. L.1.%/wt. MR (Calc.) 56.908 5 113°C 1,0000 5 (nD-d/2) u. 30 mm 1.0000 Dispersion Dielectric BP 0.9100 Flash Point °C 205 to t. 0 8829 6.92309 4 Fire Point t<sub>c</sub> 1873.3 <u> 450 °C</u> M Spec. 140. 5 AHc kcal/m Ultra V. ΔHf A\* | 205 to 1.69095 5 X-Ray Dif. ΔFf B+ 380 °C 1797.0 Infrared ĸ Viscosity Solubility in c centistokes Acetone t<sub>k</sub> t<sub>x</sub> to Carbon tet. •c ı Bensene 7.23920 A' 113 to Ether 2097.4 B' [205 °C 5 n-Heptane 160. 5 to Ethanol Ã۷ ·c A'+ 113 to 1.54557 Water 5 Water in (BV) B'# 205 °C 1997.0 to Ac | to  $(A^{V})_{I}$ •c Bc t<sub>c\_</sub> cp liq. •ĸ Cc Cryos. A\* c<sub>p</sub> vap. •ĸ consts. B° c, vap. te °C 362, 26 5 grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: PURIFICATION: Distillation, crystallization LITERATURE REFERENCES:

<del></del>										No. 47				
NAME		Br	omo	cyc	ohex	ane			STRUCTURAL FORMULA					
1									CHE	3r				
		$\neg$							1 1	Hg				
Mole			ef.	Mo	lecul		Molecular	.	H≥Č, C	H <sub>2</sub>				
% Pur. 99.	86	L_	1	For	mul	61121	Weight 163.0	64	0112					
					Ref.			Ref.			Ref.			
F.P. °C		-56	. 51		1	dt/dP			f to					
F. P. 1007	•					*C/mm			g• <u>K</u> _					
B. P. *C	1					25°C BP	5. 2211 0. 05347	5	h					
760 mm 100		166	. 17 . 33		1 4	t	0.03743	5	f'   to					
30	1		. 33		4	30 mm	0.7516	4	g' : <u>*K</u>					
10			. 51		5	ΔHm cal/g	12.75	4	h'					
1	$\bot$	7	. 3		5		12.73	╅╌	m to					
Pressure	1	•	.,		ا ـ ا	ΔHv cal/g 25°C	65.66	5	n  •K					
mm 25°C	١,	د 198ء	. 16	1	5 5	30 mm	63.03	5	° '					
Deseite	+				-	BP	55.11	5	m' to					
Density g/ml 20°C	:	1	33	585	lı	te ta (d, e)	53.67 53.54	5	n'   L _ •K_					
at 25				976	i	ΔHv/T <sub>e</sub>	1	5	0'					
4 30		1	. 32	253	4		19.07	-	Surface tension					
a	Τ			939	4	d 68 to	68.56 0.0809	5	dynes/cm. 20°C	34, 02	1			
ь	$\perp$	-0	. 00	123	4	a 130 to	67.18	5	30	32.88	1 1			
Ref. Index					١. ا	e'   68 °C		5	40	31.81	┼┷┥			
n <sub>D</sub> 20°C	1			570 333	1 1	d <sub>c</sub> g/ml			Parachor [P]	204 0	4			
30	1			165	l i l	v <sub>c</sub> mi/g			30	294.8 295.25	4			
"C"	T	0	. 48	85	4	1 -	İ		40	295.6	4			
MR (Obs.)	+		. 64		4	P <sub>c</sub> mm		L	Sugd.	291.0	5			
MR (Calc.			. 47 . 47		5	PV/RT			Exp. L.1.%/wt.					
(nD-d/2)				278	4	25°C 30 mm	1.0000	5	u. Dispersion					
Dielectric	T	7	. 84	5	1	BP	0.9520	5	Flash Point *C		$\vdash$			
A 68 to	1	6	. 97	980	4	te t	0.9385	5	Fire Point					
B 1260 °C	_ ı	572	. 19		4	С			M. Spec.		+			
С	4	217	. 38		4	ΔHc kcal/m ΔHf			Ultra V.					
A*  68 to				871	5	ΔFf	1		X-Ray Dif.					
B*[205 °C	- '	473	. 57		5	Viscosity	1	1	Infrared		$\perp$			
c						centistokes			Solubility in T					
t <sub>k</sub> to						η 20 °C	1.7008	1	Acetone Carbon tet,	ec ec				
<u>  <del> </del> </u>	-					· 40	1.2272 0.9337	1 1	Benzene	<b>*</b>				
A'   0 to B'   68 °C				139	5	80	0.7404	i	Ether		.			
C, 1-98-7	- '	778 235			5		606,87	4	n-Heptane Ethanol	<b>o</b> o				
A'* 0 to	+			190	5	A 1 90 °C	2. 15127	4	Water	"				
B'* 68 °C		671			5	(B <sup>V</sup> )  to	-1	1	Water in	0.036	1			
Ac to	_			-		(A <sup>V</sup> )  °C			1		1			
Bc tc °C							†	$t^-$	1	1				
Cc	⇉					P -		1	1	İ				
Cryos. A° consts. B°		0	. 02	092	1	c <sub>p</sub> vap. *K								
t <sub>e</sub> °C	I	185	. 58		5	c <sub>v</sub> vap.	1							
									grams/100 gra		nt			
REFEREN	CE	S:	1 - D	0 <b>W</b>			Calc, from de	t. da	ata 5-Calc, by for	mula				
SOURCE:					D	ow			·					
PURIFICA	TIC	N:			Di	stillation								
LITERATU	RE	R	EFI	ERE	NCES	5:								
1														
1											i			
1														
1														

No. 48 STRUCTURAL FORMULA (2-Bromoethyl)cyclohexane NAME β-Bromoethylcyclohexane H2C CHCH2CH2Br ,ĊH2 H2Ċ Molecular C8H15Br Molecular Mole C H2 % Pur. 99. 99 Weight 191.116 Ref. Ref -57.28 dt/dP to F.P. 100% °C/mm g <u>•K</u> 25°C 37.459 B. P. \*C h 0.05767 ВP 4 760 mm 212.13 0.03736 5 ſ١ to 100 138,83 4 ŧ, •K g' 106.33 30 4 30 mm 0.8150 4 5 10 81.313 h' ∆Hm cal/g 39.60 5 to m ΔHv cal/g Pressure •K 25°C 30 mm n 66.51 5 mm 25°C 0.3711 5 ٥ 61.26 5 te 1322,0 5 BP 52.95 5 m' to Density 5 te (d, e) 51.12 n' •ĸ g/ml 20°C 1.23574 5 50.93 1,23049 dt4 AHV/Te 5 19.12 30 1,22724 4 Surface tension 1 105 to 69.61 5 1.25274 -0.0<sub>3</sub>85 dynes/cm. 20°C 33.96 240 •c 0.0785 5 ь 30 32.90 1 ď٠ to 68.12 1 10 5 40 31.88 1 Ref. Index e' •c 105 0.0645 5 1.48986 (P) 20°C Parachor  $\mathbf{n}_{\mathbf{D}}$ 1 d<sub>c</sub> g/ml 25 1.48777 20°C 373.3 c ml/g 30 1.47697 1 30 373.0 4 437.0 5 tc 40 372.6 "C" 0.5223 4 P<sub>c</sub> mm 5 Sugd. 369.0 MR (Obs.) 44,703 4 PV/RT Exp. L. l. %/wt. MR (Calc.) 44.709 25°C 1.0000 5 (nD-d/2)u. 0.87200 4 30 mm 1.0000 5 Dispersion Dielectric 0.9475 5 BP Flash Point °C 0.9297 te T105 to 7,02343 Fire Point ťc 1731.83 205.92 1300 °C M Spec. C AHc kcal/m 4 Ultra V. ΔHf A\* | 105 to 1.60197 5 X-Ray Dif. ΔFf B\* 260 °C 1629.23 Infrared ĸ Viscosity Solubility in centistokes Acetone to 20 2,2721 **t**x | Carbon tet. •c 1.5878 40 Benzene 1.1852 60 1 10 to 7.22369 Ether 80 0.9292 1 B; 105 °C 1875.28 5 n-Heptane BV | 30 5 643.52 4 220. to Ethanol AV | 90 •c Z. 14614 Water A\*\* 10 ), 81532 1772, 32 5 (B<sup>V</sup>) Water in B'# 105 °C to Ac | (AV)1 °C Bc cp liq. ۰ĸ Cc Cryos. A. 0.01412 1 cp vap. ٠ĸ consts. B° c, vap. te °C 237,88 5 grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det. data 5-Calc. by formula SOURCE: Dow **PURIFICATION:** Distillation LITERATURE REFERENCES:

No. 1 Cyclohexene NAME STRUCTURAL FORMULA H2C CH CH2 HgĊ. Mole Ref. Molecular Molecular C6H10 % Pur Formula Weight 82.140 Ref. Ref Ref. -103.512 2 dt/dP f to F.P. 100% °C/mm •K g 25°C 0.2466 5 B. P. \*C h 82.979 27.62 ВP 0.04381 2 760 mm 2 4 0.03620 5 ſ١ 100 g' •<u>к</u> 30 3.29 4 30 mm 5 0,6086 -15.14 5 10 h' AHm cal/g 9.582 3' -45.49 300 -0.1232 to m ∆Hv cal/g 0.0017 Pressure 1600 n •K 25°C 96.83 1 mm 25°C 88.83 ٥ -0.0674 4 30 mm 101.30 te 970.61 5 BP 88.47 5 m' 1700 0.0336 Density to 4 te te (d, e) 87,13 5 n' 1000 •K 0.0012 g/ml 20°C ١ 4 0.81096 87.12 5 ٥' -0.0644 4 dt4 0.80609 2 ΔHv/Te 19.63 5 30 0.80141 2 Surface tension a 3 101.83 5 to 0.8304 dynes/cm. 20°C 26.54 °C 0.1610 5 ь -0.0396 30 25.22 31 to dآ 40 23.98 31 Ref. Index e' i °C 20°C 1.44654 [P] n D 2 Parachor d g/ml vc ml/g t °C 0.288 5 25 1.44377 20°C 229.9 5 3,473 30 1.44100 2 30 229.7 4 <sup>t</sup>c 286. 5 40 229.5 4 "C" 0.7295 4  $P_c$  mm 5 31784. Sugd. 5 229.1 27, 038 MR (Obs.) 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 27, 241 25°C 0.9866 5 (nD-d/2)u. 1.04106 2 30 mm 1,0000 117.1 2 Dispersion 5 Dielectric. 2, 220 3 BP 0.9635 5 Flash Point C 0.9570 A 3 to 5 6.88617 2 Fire Point 0,260 B 146 °C 1229.973 Yes 1 M. Spec. AHc kcal/m 224, 104 2 Ultra V. ΔHf A# 3 to 1.20240 X-Ray Dif. ΔFf B\*[101 °C 1147.7 Infrared 293. 1 ĸ Viscosity Solubility in centistokes Acetone to Carbon tet. •c 00 ليكا Benzene 00 A'I to Ether œ B' <u>•с</u> n-Heptane œ B<sub>v</sub> c' to Ethanol œ ٠c Water AI\* to Water in B'\* (BV) •c to Ac|146 to 7.31379 5 (A<sup>V</sup>) °C BcL •c 1566.7 c<sub>p</sub> liq. ۰ĸ Cc 272 Cryos. A\* c<sub>p</sub> vap300°K 0.30777 2 consts. B° 400 0.42172 2 c vap. te °C 91.34 5  $T_R = 0.75 T_c$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula API SOURCE: **PURIFICATION:** API LITERATURE REFERENCES: 3 NBS 514; 3' Timmermans

No. 2 l-Methylcyclohexene STRUCTURAL FORMULA NAME Molecular Mole Ref. Molecular C7H12 Weight 96.166 % Pur. Formula Ref Ref. -121. 2 F.P. °C F.P. 100% dt/dP f to \*C/mm 25\*C g \*K 0.6405 5 B. P. °C h BP 0.0470 2 760 mm 110.0 2 0.03665 5 ſ t, 100 to 50.66 4 £' •K 30 24.6 4 30 mm 0.6514 10 4.88 5 h' ΔHm cal/g -27.57 to ΔHv cal/g m Pressure •K n 25°C 93.83 mm 25°C 30.61 5 ٥ 30 mm 93.78 5 1046.2 t. BP 81.27 5 5 m to 1 Density g/ml 20°C t<sub>e</sub> (d, e) 79.57 n' ٠ĸ 0.8102 2 79.54 5 01 25 0.8058 ΔHv/T ď4 5 30 19.37 0.8014 4 Surface tension 25 97.38 5 to 0.8278 -0.0<sub>3</sub>87 44 a b dynes/cm. 20°C 26.01 5 130 •c 0.1465 30 24.89 5 ð۳ ٠<u>٠</u> Ī 40 23.80 5 Ref. Index •' 1.4503 20°C 2 P Parachor  $\mathbf{n}_{\mathbf{D}}$ 0.272 d<sub>c</sub> g/ml 1.4478 vc ml/g 25 2 20°C 3,679 5 1.4459 4 30 30 ś 311. 40 "C" 0.7360 4 26771. P<sub>c</sub> mm 5 Sugd. 268.1 5 MR (Obs.) 31.91 2 PV/RT Exp. L.1.%/wt. 31.859 5 MR (Calc.) 1.0000 25°C 5 u. (nD-d/2) 1.0452 2 30 mm 1.0000 5 Dispersion 120. 2 Dielectric BP 0.9600 5 Flash Point °C 0.9519 5 6.86861 1308.0 25 to Fire Point 0,260 t<sub>c</sub> B 1165 °C M Spec. Ultra V C 5 218. AHc kcal/m ΔHf A\* 25 to B\* 131 °C 1.22876 5 X-Ray Dif. ΔFf 1222.1 Infrared ĸ Viscosity Viscos.., centistokes °C Solubility in c Acetone to Carbon tet. •c Benzene to Ether B١ <u>•c</u> n-Heptane Ċ١ B Ethanol ÁV •c Water AI\* to Water in ٠c (BV) B'\* to 7.28846 Ac | 165 to (AV) 5 •c Bc tc\_ •c 1649.7 liq. •ĸ c<sub>p</sub> Cc 265. 5 Cryos. A. c<sub>p</sub> vap. •ĸ consts. B° c, vap. t. .C 121.83 5  $T_R = 0.75 T_c$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

NAME	3-Metl	ylcy	clohe	exene		STRUCTURAL FORMULA				
Mole % Pur.	Ref.	Mo! For	ecul:	C7H12	Molecular Weight 96.166	6	H2C CH2 H2C CH	н НСН <sub>3</sub>		
			Ref.			Ref.		R	₹eſ,	
F. P. °C				dt/dP	<del></del>		f to			
F.P. 100%	+		-	*C/mm			f to			
B. P. *C	<del>                                     </del>	$\neg \neg$		25°C	0.5160	5	ъ I			
760 mm	104.0		2	BP	0.04630	2			_	
100	45.55		4	t <sub>e</sub>	0. 03655	5	f' to			
30	19.88		4	30 mm	0.6416	5	g' <u>*K</u>			
10	-31.50		5	∆Hm cal/g			h¹			
	- 32.30		<u> </u>	ΔHv cal/g			m to	i i		
Pressure mm 25°C	38.92		5	25°C	91.50	5	n   <u>*K</u>			
t <sub>e</sub>	1029.9		5	30 mm	92.22	5				
Density	+			BP	80.01 78.43	5	m' to			
g/ml 20°C	0.80	10	2	t (d, e)	78.40	5	n'			
dt 25 4 30	0.79		2	AHv/Te	19.43	5	0 1			
4 30	0.79	22	4		<del> </del>		Surface tension			
	0.81		4	d 20 to	95.11 0.1451	5	dynes/cm. 20°C		5	
ь	-0.0	1°'	4	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1		30		5	
Ref. Index				•' L •C			40	22.70	<del>-</del>	
n <sub>D</sub> 20°C	1.44		2	d <sub>c</sub> g/ml	0, 272	5	Parachor [P] 20°C			
30	1.43		4	vc ml/g tc °C	3, 682	5	30			
"C"	0.73		4	1 c 3C	301.	5	40			
MR (Obs.)	+	_	2	P <sub>c</sub> mm	26290.	5		268.1	5	
MR (Calc.			5	PV/RT		_	Exp. L.1, %/wt.			
(nD-d/2)	1.04		2	25°C 30 mm	1.0003	5	u.			
Dielectric				BP BP	0.9619	5	Dispersion	L		
A 20 to	6.86	718	5		0.9534	5	Flash Point *C Fire Point			
B (158 °C			5	t e t c	0, 260	5		<del></del>		
_ c	219.		5	ΔHc kcal/m			M. Spec. Ultra V.			
A* 20 to		234	5	ΔHf ΔFf			X-Ray Dif.			
B*[125 °C	_ 1202.6		5			$\vdash$	Infrared			
c				Viscosity centistokes			Solubility in +			
t <sub>k</sub> [ to	-			η •c	1		Acetone	1		
•c					1		Carbon tet. Bensene	i i		
A'   to						1	Ether			
B'	-			B <sup>V</sup> to	†	1	n-Heptane	[		
	<del></del>			B <sup>V</sup> to C		1	Ethanol Water	1		
A'* to B'* *C				(B <sup>V</sup> )  to	•		Water in			
Ac 158 to		3693	5	(A <sup>V</sup> )  °C						
Bc tc C			5		<del> </del>	+				
Cc	265.		5	c <sub>p</sub> liq. *K						
Cryos. A° consts. B°				c <sub>p</sub> vap. *K						
te °C	115.00	5	5	c <sub>v</sub> vap.	1					
$T_R = 0.7$	T <sub>c</sub>		L			·	grams/100 gra		_	
REFEREN	ES: 1-I	)ow	2-A	PI 3-Lit. 4-	Calc, from de	t. da	ta 5-Calc. by for	mula		
SOURCE:			A.	PI						
PURIFICA?	TION:		A.	PI						
LITERATU	RE REF	ERE	NCE	5:						
I										

No. 4 4-Methylcyclohexene STRUCTURAL FORMULA NAME Ref. Molecular Molecular Weight 96,166 Mole С<sub>7</sub>Н<sub>12</sub> % Pur Formula Ref. Ref Ref. -115.5 2 dt/dP f to F.P. 100% °C/mm <u>•</u>K g 25°C 0.4944 5 B, P. °C h BP 0.0461 760 mm 102.74 2 0.03649 5 ſ 100 44.53 4 g' •ĸ 30 18.98 4 30 mm 5 0.6390 -0.37 5 10 h' AHm cal/g -32,20 to m AHv cal/g Pressure •ĸ n 25°C 91.15 mm 25°C 40.76 o 30 mm 92.03 5 te 1026.4 5 BP 5 79.83 to Density m' t<sub>e</sub> (d, e) 78,27 5 n' •K g/ml 20°C 0.7991 2 5 78.25 ۰, 0.7947  $\mathbf{d_4^t}$ 25 2 AHv/Te 19.46 5 30 0.7902 4 Surface tension 1 19 94.79 5 d 0.8168 8 dynes/cm. 20°C 24,61 0.1456 å, 1 114 <u>•</u>c ь -0.0388 4 30 23.53 to 40 22.47 5 Ref. Index e'  $\mathbf{n}_{\mathbf{D}}$ 20°C 1.4414 2 [P] Parachor d g/ml vc ml/g 0.272 5 5 2 25 1.4389 20°C ml/g 3.675 30 1.4362 4 30 299. 5 tc "C" 40 0.7324 4 P<sub>c</sub> 5 26254. mm Sugd. 268.1 5 MR (Obs.) 31.80 2 PV/RT Exp. L.1.%/wt. 31.859 MR (Calc.) 25°C 1.0000 5 (nD-d/2) 1.0418 30 mm 1.0000 Dispersion Dielectric ВP 0.9620 5 Flash Point °C 0.9537 19 to t<sub>e</sub> 6.86881 5 Fire Point t<sub>c</sub> 0.260 1283.1 156 °C M Spec. 219. 5 AHc kcal/m Ultra V AHf A\* | 19 to 1.23537 X-Ray Dif. ΔFf 1198.4 B+ 124 °C Infrared ĸ Viscosity Viscos., centistokes \*C Solubility in c Acetone to ·c Carbon tet. Benzene ۸'n to Ether B١ <u>•c</u> n-Heptane c٠ B<sup>V</sup> A<sup>V</sup> ٦ Ethanol to AT+ •c Water to Water in ·ċ (BV) B'\* to Ac | 156 to 7, 28813 (A<sup>V</sup>)1 °C ·c 1616.5 5 Bc Ltc\_ cp liq. ۰ĸ Сc 265. 5 Cryos. A° consts. B° c<sub>p</sub> vap. •ĸ t. °C c, vap. 113.62 5  $T_{\mathbf{R}} = 0.75 \, T_{\mathbf{C}}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 4-Calc, from det. data 3-Lit. 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

NAME	l -Eth	ylcycl	ohe	kene		$\dashv$	STRUCTURAL FORMULA				
						$\dashv$	H <sub>2</sub> C, C <sub>2</sub> H <sub>4</sub>	3			
Mole % Pur.	Ref.	Mole For	ecul mula		Molecular Weight 110.19	92	H2C CH2				
			Ref.			Ref.		Ref.			
F. P. *C				dt/dP			f to				
F.P. 100%				°C/mm	. 7033	ا ۽ ا	g  • <u>K</u>				
B.P. °C 760 mm	124		,	25°C BP	1.7022 0.04993	5 4	h				
100	136.	4	2 4	t <sub>e</sub>	0.03702	5	f' to	1			
30 10	45.2		4	30 mm	0.6926	5	g' ' <u>*K</u>				
1 10	-11.0		5	ΔHm cal/g			h'				
Pressure				ΔHv cal/g	00.00	ا ۔ ا	m to				
mm 25°C	10.48	3	5	25°C 30 mm	89.87 88.02	5	0				
t <sub>e</sub>	1116.5		5	BP	75.79	5	m¹ to				
Density g/ml 20°C	0.8	23	2	t <sub>e</sub> (d, e)	73.81	5	n'•K				
dt 25	0.8	19	2	ΔHv/T	19.16	5	0'				
	0.8		4	d 45 to	94.11	5	Surface tension				
a b	-0.0		4 4	e   151 °C	0.1347	5		27.67   5 26.61   5			
Ref. Index	+		$\dashv$	d' 25 to	92.15	5		5.57 5			
n <sub>D</sub> 20°C	1.49		2	d <sub>c</sub> g/ml	0.268	5	Parachor [P]				
30	1.4		2 4	v_mi/g	3. 738	5	20°C				
"C"	0.7		4	ະ⊱ີ •ເ	339.	5	40				
MR (Obs.)		-	2	P <sub>c</sub> mm	23910.	5	Sugd. 30	07.1 5			
MR (Calc.		77	5	PV/RT 25°C	1 0000	5	Exp. L.1.%/wt.				
(nD-d/2)	1.0	46	2	30 mm	1.0000	5	u. Dispersion 11	7. 2			
Dielectric				BP	0.9569	5	Flash Point C				
A 45 to B 186 °C		7507	4	te	0.9455 0.258	5	Fire Point				
c	213.		5	ΔHc kcal/m		$\vdash$	M. Spec.	1			
A* 45 to		7409	5	ΔHÍ ΔFÍ			Ultra V. X-Ray Dif.				
B*[161_°C	1304.9		5	Viscosity		$\vdash$	Infrared				
c	_			centistokes			Solubility in * Acetone	İ			
				η •c	}		Carbon tet.				
A'   25 to		5131	5				Benzene Ether				
B' 45 °C		,,,, l	5	<del></del>	-		n-Heptane				
c'	231.		5	B <sup>v</sup> to A <sup>v</sup> · °C	1	ļ	Ethanol Water				
A'* 25 to B'* 45 °C		3487	5	⊢. <u>-</u> ν <del></del> −	-		Water in				
Ac 186 to	<del></del>	9002	5	(B')  to							
Bc tc C	1744.7	/ ***	5		<del> </del>	+-	1				
	1 200.		5	Р -		1					
Cryos. A'consts. B'				c <sub>p</sub> vap. *K							
t <sub>e</sub> °C	151.2	4	5	c <sub>v</sub> vap.	l						
$T_R = 0.7$							grams/100 grams				
REFEREN	CES: 1-1	Dow	2-A		Calc, from de	et. da	ata 5-Calc. by form	ıla			
SOURCE:				PI 							
PURIFICA				PI -							
LITERATU	JKE REF	EREN	ICE:	5:							
1											

No. 6 STRUCTURAL FORMULA 3-Ethylcyclohexene NAME Molecular C8H14 CH2 C2H5 Mole Ref. Molecular % Pur Weight 110.192 Ref. Ref. F.P. C F.P. 100% dt/dP f to \*C/mm 25\*C . <u>•</u>K 1.5563 B. P. °C h BP 0.04988 760 mm 134. 0.03713 5 f ٤. to 100 71.03 4 •ĸ £' 30 43.38 4 30 mm 0.6912 5 5 10 22.34 þ, AHm cal/g -12.775 to AHv cal/g m Pressure mm 25°C •K 25°C n 88.78 11.60 5 30 mm ٥ 87.16 t. 1111.0 5 BP 75.13 Density m' to t. (d, e) 73.20 5 g/ml 20°C n' •ĸ 0.814 2 73.14 01 0.810 2 dt4 AHV/T 5 19.10 30 0,806 4 Surface tension 43 92.92 5 0.8300 26.48 25.45 dynes/cm. 20°C 5 149 •c 0.1328 5 Ъ -0.0380 4 30 5 to 90.99 40 24.44 5 Ref. Index •1 •c 0.0883 43 5 20°C 1.451 (P)  $\mathbf{n}_{\mathbf{D}}$ Parachor d<sub>c</sub> v<sub>c</sub> t<sub>c</sub> g/ml 0.263 5 25 24 1.449 20°C ml/g 3.809 30 1.446 30 •c 5 335. 40 "C" 0.7337 4 Pç 23315. 5 307.1 5 mm Sugd. MR (Obs.) 36.5 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 36.477 5 25°C 1.0000 5 (aD-d/2) 1.044 2 30 mm 1.0000 5 Dispersion Dielectric BP 0.9570 5 Flash Point °C 43 to 6.86759 t. 0.9458 5 4 Fire Point tc 0.258 1387.4 [183 °C M Spec. 214. 5 С ΔHc kcal/m Ultra V. ΔHf A\* | 43 to 1.26777 5 X-Ray Dif. ΔFſ B+ 159 °C 1298.2 Infrared ĸ Viscosity Solubility in centi stoke s Acetone ا ا ا to Carbon tet. •c Bensene A' I 25 to 7.24458 Ether \_4<u>3</u> °C 1588.2 n-Heptane  $\overline{\overset{B^{V}}{A^{V}}}$ 5 232. to Ethanol AI\* •c Water 25 1.62837 Water in (BV) B'\* 43 °C 1488.3 to Ac | 183 to 7.28346 5 (A<sup>V</sup>) •c Bc tc\_ 1736.9 сp liq. •ĸ Cc 261. 5 Cryos. A. •ĸ vap. consts. B° c, vap. t °C 5 149.02  $T_{\mathbf{R}} = 0.75 \, \mathbf{T_{\mathbf{C}}}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3 - Lit. 4-Calc. from det. data 5-Çalc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

NAME	4-Eth	ylcyc	lohe	xene		STRUCTURAL FORMULA						
Mole	Ref.	Mo!	ecul	Molecular Weight 110.192			H <sub>2</sub> C CH H <sub>2</sub> C CH <sub>2</sub> CH C2H <sub>5</sub>					
% Pur.		For	mula 8 <sup>11</sup> 14 Weight 110, 192			2	Un oziis					
			Ref.			Ref.		<del></del>	Ref.			
F.P. °C	<u> </u>			dt/dP			f to					
F.P. 100%	<u>'</u>			*C/mm 25*C	1.51221	5	g ' ' <u>*</u> Ł	<u> </u>				
B. P. *C	1			BP	0.04963	4	h					
760 mm	133.	2	2 4	t.	0.03705	5	f' to					
30	42.7	в	4	30 mm	0.6885	5	g' <u>-</u> 1	2				
10	21.8		5	ΔHm cal/g			h'					
1	-13.1	•	-	ΔHv cal/g	<b>†</b>		m   to					
Pressure mm 25°C	11.9	.	5	25°C	88.75	5	n	<u> </u>	1			
t <sub>e</sub>	1106.7	' l	5	30 mm	87.17	5			$\perp$			
Density	<del>                                     </del>		$\neg$	BP t	75.06 73.14	5	m' to					
g/ml 20°C	0.8	10	2	te te (d, e)	73.08	5	∦ n¦!	딕				
dt 25	0.8		2	AHV/T	19.14	5			$\perp$			
	0.8		4	d 43 to	92.92	5	Surface tension					
a b	0.8		4	e   148 °C		5	dynes/cm. 20°C		5			
Ref. Index	-0.0	300		d'   25 to	90.96	5	30 40	24.95	5			
n <sub>D</sub> 20°C		49	2		<del></del>	5	Parachor [P]	<b></b>	1			
25	1.4		2	d <sub>c</sub> g/ml	0. 264 3. 792	5	20°C	;				
30	1.4	44	4	vc ml/g tc °C	332.	5	30					
"C"	0.7	342	4	P <sub>c</sub> mm	23306.	5	40 Suga	1. 307. 1	5			
MR (Obs.)			2	PV/RT	23300.	Ť	Exp. L.1.%/wt	<del></del>	+-			
MR (Calc.			5	25°C	1.0000	5	u.	·				
(nD-d/2)	1.04	44	2	30 mm	1.0000	5	Dispersion					
Dielectric				BP	0.9561 0.9449	5	Flash Point C					
A 43 to B 180 °C		7619	4	te tc	0.258	5	Fire Point					
c Los Lo	214.		5	ΔHc kcal/m	<del>                                     </del>	<del>                                     </del>	M. Spec.					
A* 43 to	1.2	7931	5	ΔHf			Ultra V. X-Ray Dif.					
B*[158 °C			5	ΔFf		ļ	Infrared	}				
K				Viscosity			Solubility in +		1			
t <sub>k</sub>   -tō	-			centistokes り *C			Acetone		1			
€ °C			١.,	,		1	Carbon tet. Bensene					
A'   25 to		5465	5				Ether					
B' 43_°C			5	nv I	<u> </u>	<del>                                     </del>	n-Heptane	1				
C'	232.		5	B <sup>V</sup> to *C		İ	Ethanol Water					
A'* 25 to B'* 43 °C		3900	5	(B <sup>V</sup> )  - to	-	1	Water in					
Ac 180 to	<del></del>	9156	5	(A <sup>V</sup> )  •C		1			T			
Bc tc °C		,130	5		+	+	1	1				
Cc	<b>261.</b>		5	c <sub>p</sub> liq. •K			1	1	-			
Cryos. A° consts. B°				c <sub>p</sub> vap. *K								
te °C	147.70	8	5	c <sub>v</sub> vap.		!	I					
$T_R = 0.7$			-				grams/100 gr	ams solve	nt			
REFEREN	CES: 1-1	Dow			Calc, from de	t. de	ata 5-Calc. by fo	rmula				
SOURCE:				PI								
PURIFICA	TION:		A.	PI								
LITERATU	RE REF	ERE	NCE	S:								
1												
1												
1												
1												

STRUCTURAL FORMULA NAME 1,2-Dimethylcyclohexene H2C CCH3 H2Ċ ÇH≱ CH≱ Molecular Ref. Molecular Mole C8H14 Formula Weight 110.192 % Pur Ref. Ref F. P. °C dt/dP f to F.P. 100% °C/mm g •ĸ ١ 25°C 1.7633 5 B. P. \*C h ВP 4 760 mm 137. 73.76 0.03709 5 f to 100 4 ٤. g' \_\*K 45.98 30 4 30 mm 0.6946 5 24.83 10 5 h' ∆Hm cal/g -10.46 5 to ΔHv cal/g m Pressure •K n 25°C 90.08 5 mm 25°C 10,10 o 30 mm 88.16 5 te 1118.05 5 BP 75.85 5 m' to Density g/ml 20°C 73.85 5 te (d, e) •<u>K</u> n' 0.8250 73.78 0 25 0.8208 2  $\mathbf{d_4^t}$ ΔHv/Te 5 19.12 30 0.8166 4 Surface tension 5 d 45 94.38 0.8418 4 27.94 dynes/cm. 20°C <u>•с</u> 0.1353 92.36 5 152 25 ь -0.0384 30 26.82 5 to 5 5 40 25.72 5 Ref. Index 0.0912 e' 45 20°C 1.4588 [P]  $\mathbf{n}_{\mathbf{D}}$ Parachor d g/ml vc ml/g tc °C 0.265 5 5 25 1.4564 2 20°C 3.768 30 1.4540 4 30 340. 5 40 "C" 0.7357 4 P<sub>c</sub> mm 5 23762. Sugd. 307.1 5 MR (Obs.) 36.50 2 PV/RT Exp. L.1. %/wt. MR (Calc.) 36.477 25°C 1.0000 5 (nD-d/2) 1.0463 u. 2 30 mm 1.0000 123. 2 5 Dispersion Dielectric BP 0.9559 5 Flash Point °C te 0.9443 5 45 to 6.87452 Fire Point tc 0,258 1397.8 178€ €C M Spec. C AHc kcal/m 213. 5 Ultra V. ΔHſ A\* | 45 to B\* | 162 °C 1.27411 5 X-Ray Dif. ΔFf 1308.8 Infrared ĸ Viscosity Solubility in centistokes Acetone to t<sub>x</sub> | Carbon tet. •c Bensene A' 25 to 7, 24966 Ether B' <u>45</u> °C 1598.9 5 n-Heptane  $\mathbf{B}^{\widetilde{\mathbf{v}}}$ 231. 5 Ethanol ÃY i •c Water A1# 25 1,63262 5 Water in B1# 45 °C 1499.1 (BV) to 7, 28962 Ac | 186 to 5 (AV) •c Bc \_tc\_ 1749.3 c<sub>p</sub> liq. •ĸ Cc 260. Cryos. A. c<sub>p</sub> vap. •ĸ consts. B. c, vap. te °C 152.34 5  $T_{R} = 0.75 T_{c}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

NAME	1,3-Dimeth	ylcy	clohexene	$\dashv$	STRUCTURAL FORMULA					
Mole % Pur.	Ref. Mol	lecul		Molecular Weight 110,19	92	H <sub>2</sub> C CH <sub>3</sub> H <sub>2</sub> C CH CH <sub>3</sub> CH <sub>2</sub>				
		Ref.	r	T	Ref.	T T	Ref.			
F, P. °C	1		dt/dP	<u> </u>	1					
F.P. 1009	•	$\vdash$	*C/mm			f to g *K				
B. P. *C			25°C	1.7642	5	h				
760 mm	137.	2	BP	0.05007	5	<del></del>	+-1			
100	73.76	4	t <sub>e</sub>	0.03708	1 1	f' to to	1			
30 10	45.99 24.84	4 5	30 mm	0.6946	5	h'				
1	-10.45	5	ΔHm cal/g	ļ	Ь.	m   to	+			
Pressure			ΔHv cal/g	00.00	ا ۔ ا	n ek				
mm 25°C	10.09	5	25°C 30 mm	90.09 88.17	5	•				
t <sub>e</sub>	1118.2	5	BP	75.86	5	m' to	+-+			
Density g/ml 20°0		١, ١	te /	73.85	5	n' 'K				
	0.802 0.798	2 2	te (d, e)	73.78	5	0'  1	1 1			
dt 25 4 30	0.794	4	ΔHv/T <sub>e</sub>	19.12	5	Surface tension	+			
	0.8180	4	d 45 to e 152 °C	94.40	5	dynes/cm. 20°C 24.95	5			
ь	-0.0380	4	152 °C	0.1353 92.37	5	¥ 30 23.97	5			
Ref. Index			e' 45 °C	0.0912	5	40 23.00	5			
n <sub>D</sub> 20°C	1.445	2 2	d <sub>c</sub> g/ml	0, 262	5	Parachor [P] 20°C				
30	1.440	4	vc ml/g tc °C	3.821	5	30				
"C"	0,7354	4		337.	5	40				
MR (Obs.)		2	P <sub>c</sub> mm	23046.	5	Sugd. 307.1	5			
MR (Calc.		5	PV/RT 25°C	1 0000	_	Exp. L.1.%/wt.	1			
(nD-d/2)	1.044	2	30 mm	1.0000	5	u. Dispersion 120.	2			
Dielectric			BP	0.9560	5	Flash Point *C	╁			
A 45 to		4	t e t c	0.9445	5	Fire Point				
B (185 °C		4		0, 255	-	M. Spec.				
	213.	5	ΔHc kcal/m ΔHf	1		Ultra V.				
A* 45 to B*(162 °C		5	ΔFf			X-Ray Dif. Infrared				
K C	-		Viscosity			<u> </u>	+-			
°	_{		centistokes	l		Solubility in Acetone				
			η •c	1		Carbon tet.				
A'   25 to	.1	5				Benzene Ether	l			
B' 45 °C		5			↓—	n-Heptane				
C'	231.	5	B <sup>V</sup> to C	1		Ethanol				
A1* 25 to		5		-1		Water Water in				
B'* 45 °C		5	(B <sup>V</sup> )  to	1	1		+			
Ac 185 to	7. 28951	5	(A <sup>V</sup> )  °C		<b>—</b>	4 1				
Bc tc C	7 1746.8 260.	5	c <sub>p</sub> liq. *K	1						
Cryos. A'			c <sub>p</sub> vap. K							
t <sub>e</sub> °C	152, 34	5	c <sub>v</sub> vap.							
$T_R = 0.7$			ш	1		grams/100 grams solve	nt			
		2-A	PI 3-Lit. 4-	Calc. from de	t. da	ata 5-Calc. by formula				
SOURCE:	<del></del>		PI							
PURIFICA	TION:		PI							
	JRE REFERE		<del> </del>							

No. 10 1,4-Dimethylcyclohexene STRUCTURAL FORMULA NAME HEC CHE CHCHS Molecular C8H14 Ref. Molecular Mole Weight 110.192 Formula % Pur Ref. Ref. -59. F.P. °C F.P. 100% 2 dt/dP f to °C/mm 8 <u>•</u>K 25°C 1.25098 5 B, P. °C h BP 0.04906 4 760 mm 128. 2 0.03696 ſ to 66.04 100 ١. 4 g' •ĸ 30 38.82 4 30 mm 0.6806 10 18.10 5 þ, AHm cal/g 5 -16.50 to m AHv cal/g Pressure •K n 25°C 30 mm 87.17 5 mm 25°C 14.70 5 ٥ 85.99 5 te 1093.5 5 BP 74.14 m' to Density 72.32 5 5 te (d, e) n' •ĸ g/ml 20°C 0.802 72.26 01 25 0.798 2 AHV/T ď4 19.19 5 30 0.794 4 Surface tension d 39 91.14 5 0.8180 dynes/cm. 20°C 24.95 5 <u>°C</u> 5 -0.0380 0.1328 ь 4 155 30 23.96 5 . . . 89.30 25 40 23.00 5 Ref. Index e١ 39 0.0855 20°C 1.446 P 2  $\mathbf{n}_{D}$ d g/ml vc ml/g tc °C Parachor 0.266 5 25 1.444 ž 20°C 30 4 3.766 5 1.441 30 323. 5 40 "C" 0.7369 4 P<sub>c</sub> mm 22934. 5 Sugd. 307.1 5 MR (Obs.) 36, 6 2 PV/RT Exp. L. l. %/wt. MR (Calc.) 36.477 1.045 5 25°C 1.0000 5 (nD-d/2) 30 mm 1.0000 5 Dispersion 119. 2 Dielectric BP 0.9570 Flash Point °C t. 0.9463 5 39 to 6.87585 1370.3 Fire Point tç 0.256 <u>174 °C</u> M Spec. Ultra V C 215. 5 AHc kcal/m ΔHf A\* 39 to 1.28236 5 X-Ray Dif. ΔFf B+ 152 °C 1282.3 Infrared ĸ Viscosity Solubility in centistokes Acetone t<sub>x</sub> Carbon tet. •c Bensene 25 to 7, 25871 Ether B١ \_3<u>9 °C</u> 1571.5 n-Heptane B 233 5 to Ethanol ÃY | ·c Water A1\* 25 1.64691 5 Water in B'# 39 °C (BV) 1472.4 to Ac | 174 to 7. 29137 5  $(A^{V})$ •c Bc tc\_ 1712.9 •c cp liq. •ĸ Cc 261. Cryos. A. c<sub>p</sub> vap. •ĸ consts. B° c, vap. t °C 142.13 5  $T_R = 0.75 T_c$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API **PURIFICATION:** API LITERATURE REFERENCES:

NAME	1,5-Dimetl	ylcy	clohexene		STRUCTURAL FORMULA					
	2,4-Dimet	nylcy	clohexene	GCH3 HgÇ ÇH						
Mole % Pur.		lecul rmuli			2	H3CHC CH2				
		Ref.			Ref.				Ref.	
F. P. *C			dt/dP			í	to		$\Box$	
F.P. 100	6		°C/mm	į		g	<u>*K</u>			
B. P. *C			25°C BP	1.2510 0.04906	5 4	h				
760 mm	128. 66.04	2	t.	0.03696		f'	to		T	
30	38.82	4	30 mm	0.6806	5	g'	' <u>*K</u>			
10	18.10 -16.50	5	ΔHm cal/g			h'			$\perp$	
Pressure	10.50	╁╧	ΔHv cal/g			m n	to *K			
mm 25°C	14.70	5	25°C 30 mm	87.17 85.99	5	Ö			1 1	
t <sub>e</sub>	1093.5	5	BP	74.14	5	m'	1		+	
Density g/ml 20°	0 005	١, ١	to , ,	72. 31	5	n'	to •K			
	0.8051 0.8009	2 2	t <sub>e</sub> (d, e)	72.26	5	ە'				
dt 25 4 30	0.7967	4	ΔHv/T <sub>e</sub>	19.19	5	Sur	face tension		$\Box$	
	0.8219	4	d 39 to	91.14 0.1328	5		es/cm. 20°C	25.34	5	
Ь	-0.0384	4	d' 25 to	89.30	5	•	30 40	24.29 23.27	5	
Ref. Inde		2	e¹   39 °C	0.0855	5	Par	achor [P]		+	
D 25	1.446	2	dcg/ml	0.265 3.774	5		20°C			
30	1.443	4	vc ml/g tc °C	323.	5		30 40			
"C"	0.7371	4	Pcmm	22887.	5			307.1	5	
MR (Obs. MR (Calc		2 5	PV/RT	<del></del>		Exp	L. 1.%/wt.			
(nD-d/2)	1.045	2	25°C 30 mm	1.0000	5	_	u.			
Dielectric	:		BP BP	0.9570	5		persion	119.	2	
A 39 to	6,87585	4	t.	0.9463	5		sh Point *C e Point			
B 174 °C		4	L'c	0.256	"	М.	Spec.		+	
	215.	5	ΔHc kcal/m ΔHf			Ult	ra V.			
A*  39 to		5	ΔFf				lay Dif. ared		1	
K	_		Viscosity			<del></del>	ability in +		+-	
t <sub>k</sub>   - t	-		centistokes り *C			Ac	etone			
\$ 'C	:		'				rbon tet.			
A'   25 to		5			1	Et	her			
B' 1_39 °	2 1571.5 233.	5	B <sup>V</sup> to	1			Heptane hanol			
A'+ 25 to	<del></del>	5	B <sup>V</sup> to A <sup>V</sup> •C		\ \ \	W a	ater			
B'+ 39 *		5	(B <sup>V</sup> ) to			W	ater in		4	
Ac 174 to	7.29133	5	(A <sup>V</sup> )  °C	1	L	1				
Bc tc	7 1712.8 - 261.	5	c <sub>p</sub> liq. *K							
Cryos. A	<del></del>	<u> </u>	c <sub>p</sub> vap. *K							
consts. B		L	P							
f .C	142.13	5	c <sub>v</sub> vap.	L		L				
$T_R = 0.$	75 T <sub>c</sub>					† gı	rams/100 gra	ms solve	nt	
	CES: 1-Dow			Calc, from de	t. da	ta 5	-Calc. by for	mula		
SOURCE:			PI							
PURIFICA			PI							
LITERAT	JRE REFERE	NCE	5:							
1										

No. 12 STRUCTURAL FORMULA 1, 6-Dimethylcyclohexene NAME H<sub>3</sub>CHÇ CH<sub>3</sub> 2, 3-Dimethylcyclohexene Molecular C8H14 HzĊ, ĊHz Ref. Mole Molecular Weight 110.192 % Pur Formula Ref. Ref. F.P. \*C F.P. 100% dt/dP f to °C/mm g <u>•ĸ</u> 25°C 1.5122 5 B, P. °C h BP 0.04963 4 760 mm 133. 2 0.03704 5 f to 100 70.32 ١. 4 g' •K 42, 78 30 4 30 mm 0.6885 5 10 21.82 5 h' AHm cal/g -13.16 5 to AHv cal/g m Pressure •ĸ 25°C 30 mm n 88.75 5 mm 25°C 11.95 a 87.17 5 t<sub>e</sub> 1107.2 5 BP 75.09 m' to Density te (d, e) 73.17 5 g/ml 20°C n' •ĸ 0.815 73.11 5 01 0.811 2 ď4 AHV/Te 19.15 5 30 0.807 4 Surface tension 43 92.90 5 0,8310 dynes/cm. 20°C 26.61 5 0.1339 •c 5 ъ -0.0380 4 155 30 25.57 5 ā٠ to 90.96 25 5 40 24.57 5 Ref. Index •c • 43 0.0884 5 1.454 1.452 20°C (P)  $\mathbf{n}_{\mathbf{D}}$ Parachor d<sub>c</sub> g/ml 0.269 5 25 ž 20°C ml/g 30 4 3.721 1,449 t<sub>C</sub> 30 •c 333. 5 40 "C" 0.7373 4 P, mm 23511. 5 Sugd. 307.1 5 MR (Obs.) 36.6 2 PV/RT Exp. L.1.%/wt. MR (Calc.) (nD-d/2) 36, 477 25°C 5 1,0000 1.046 2 u. 30 mm 1,0000 5 Dispersion Dielectric BP 0.9564 5 Flash Point °C t, 0.9452 5 43 to Fire Point 6. 87619 0.255 1386.4 1180 °C M Spec. 5 C 214. AHc kcal/m Ultra V. ΔHf A\* 43 to 1.27870 5 X-Ray Dif. ΔFf B+ 158 °C 1297.8 Infrared K Viscosity Solubility in centistokes Acetone t<sub>x</sub> Carbon tet. •c Benzene A' 25 to 7, 25465 Ether B١ 1587.6 43 °C n-Heptane C' 232. 5 в¥ to Ethanol •c Water A1# 25 1.63900 5 Water in B'# 43 °C 1487.8 (BV) 5 to Ac | 182 to 7, 29175 5 (AV) •c Bc |\_tc\_ •c 1734.6 liq. ۰ĸ Cc СЪ 261. Cryos. A. c<sub>p</sub> vap. •ĸ consts. B° c, vap. \* .C 147.80 5  $T_{R} = 0.75 T_{c}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

NAME	3, 3-Di	meth	ylcy	clohexene		STRUCTURAL FORMULA			
Mole % Pur.	Ref.		ecul:	H2C, CH2 H2C, C(CH2)5 CH					
			Ref.		Weight 110.19	Ref.	1	Ref	
F.P. °C				dt/dP			f to		
F.P. 100%	†			*C/mm			g  • <u>K</u>	- 1	
B. P. *C				25°C	0.8936	5	h		
760 mm	119.		2	BP	0.04804 0.03689	5	f' to	$\neg$	
100 30	58.36 31.73		5	t <sub>e</sub> 30 mm	0.6655	5	g' K		
10	11.47		5		0.0055	-	h'	- 1	
1	-22.35	5	5	ΔHm cal/g	<del> </del>	├	m to		
Pressure				ΔHv cal/g 25°C	84.53	5	n  •K		
mm 25°C	1067.3	3	5	30 mm	83.98	5	0		
t <sub>e</sub>	1007.3		,	BP	72.35	5	m¹ to		
Density g/ml 20°C	0.80	۱ <sub>4</sub>	2	t <sub>e</sub> (d, e)	70.68 70.63	5	n'   °K		
	0.80		2		1	1	0'		
d <sub>4</sub> 25 30	0.79		4	ΔHv/T <sub>e</sub>	19.23	5	Surface tension	$\top$	
•	0,82		4	d 32 to e 140 °C	88.21 0.1333	5	dynes/cm. 20°C   25.20		
_Ъ	-0.0	379	4	a - 25 to	86, 57	5	30 24.20		
Ref. Index				e'   32 °C	0.0815	5	40 23.2	3 5	
<sup>n</sup> D 20°C	1.44		2	d_g/ml	0.269	5	Parachor [P] 20°C		
30	1.44		4	d <sub>c</sub> g/ml v <sub>c</sub> ml/g t <sub>c</sub> °C	3.720	5	30		
"C"	0.73	335	4	•	310.	1	40		
MR (Obs.)	36.5		2	P <sub>c</sub> mm	22801.	5	Sugd. 307.1	5	
MR (Calc.	36.47		5	PV/RT 25°C	1.0000	5	Exp. L.1.%/wt.		
(nD-d/2)	1.04	13	2	30 mm	1.0000	5	u. Dispersion		
Dielectric				BP	0.9570	5	Flash Point *C	$\dashv$	
A 32 to		6558	4	te	0.9470 0.257	5	Fire Point		
B 1164 °C	1334.9 216.		4 5	tc ΔHc kcal/m	0.237	1	M. Spec.		
A* 32 to	+	2222	5	ΔHf	1		Ultra V.		
B*[142 °C		8233	5	ΔFf			X-Ray Dif. Infrared	ł	
к	-			Viscosity			Solubility in +	+	
t, to	-			centistokes n °C			Acetone		
t <sub>k</sub> to t <sub>x</sub> c			ł	<b>"7 °</b> C		l	Carbon tet.		
A1 25 to	7 2	5710	5				Benzene Ether		
B' 32 °C	1535.9		5	<del></del>		—	n-Heptane		
C'	234.		5	B <sup>v</sup> to C			Ethanol		
A1# 25 to		4711	5			}	Water Water in	- 1	
B'* 32 °C	+		5	(B <sup>V</sup> )  to		1			
Ac 164 to Bc to C		8069	5	(A <sup>V</sup> )  °C	-	<b>⊢</b>	4		
Bc tc C	261.		5	c <sub>p</sub> liq. °K		1		į	
Cryos. A*	<b>†</b>			c <sub>p</sub> vap. *K		1			
consts, B°			L	p					
te °C	131.8	7	5	c <sub>v</sub> vap.	1				
$T_R = 0.7$	5 T <sub>c</sub>						grams/100 grams sol	vent	
REFEREN	CES: 1-I	Dow	2-A	PI 3-Lit. 4-	Calc. from de	t. d	ata 5-Calc. by formula		
SOURCE:			A	PI					
PURIFICA	TION:		A	PI					
LITERATU		ERE	NCE	S:					

STRUCTURAL FORMULA NAME 4, 4-Dimethylcyclohexene н**≅**С, СН C(CH3)5 Molecular Molecular Mole Ref. C8H14 Weight 110.192 Formula % Pur Ref Ref. Ref. -80.5 2 F.P. °C F.P. 100% dt/dP to °C/mm g •ĸ 25°C 0.8280 B. P. °C h ВP 0.04781 760 mm 116.98 2 0.03686 5 ſ to 100 56, 61 4 £' •K 30 30.09 4 30 mm 0.6630 5 10 9. 91 5 h! AHm cal/g -23.80 5 to ΔHv cal/g m Pressure •K n 25°C 83.80 mm 25°C 23.11 1061.6 o 30 mm 5 83.41 t<sub>e</sub> 5 BP 71.96 5 5 to Density m' 70.34 n¹ •ĸ g/ml 20°C 0.7996 (d, e) 2 70.30 5 01 25 0.7956 0.7916 ď4 2 4 AHV/T 5 30 19.24 Surface tension 30 87, 37 0.8156 a dynes/cm. 20°C 24.65 •c 0.1317 140 5 -0.0379 4 30 23.67 22.71 •C 85.76 15 5 40 5 Ref. Index •' 30 0.0780 20°C 1.4420 2 Parachor [P]  $\mathbf{n}_{\mathbf{D}}$ ďc g/ml 0.269 5 25 1.4396 20°C vc tc ml/g 3.719 30 1.4373 4 30 •c 306. 5 40 "C" 0.7329 4 P<sub>c</sub> mm 22652. 5 Sugd. 307. 1 5 MR (Obs.) 36.46 2 PV/RT Exp. L.1. %/wt. 36.477 MR (Calc.) (nD-d/2) 5 1.0000 25°C 5 1.0422 30 mm 1.0000 5 Dispersion 115. 2 Dielectric BP 0.9571 Flash Point °C 0.9473 te 30 to 6.87266 Fire Point 0.257 <sup>t</sup>c Π6Γ.C 1333.2 M Spec. Ultra V C 217. AHc kcal/m ΔHſ A\* | 30 to B\* 140 °C 1.29067 5 X-Ray Dif. ΔFſ 1247,4 Infrared Viscosity Solubility in centistokes Acetone to Carbon tet. •c Benzene A' 15 to 7, 26571 Ether B١ <u>\_30</u> <u>•c</u> 1534.5 n-Heptane ВŸ C 235. 5 Ethanol ÃV A'+ •c Water 1.65563 15 to 5 Water in B'\* 30 ·c (BV) 1435.0 to Ac | 161 to 7.28876 (A<sup>V</sup>) 5 •c Bc tc •c 1666.8 liq. c<sub>p</sub> •ĸ Cc 262. Cryos. A c<sub>p</sub> vap. •ĸ consts. B c, vap. f .C 129.58 5  $T_R = 0.75 T_c$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES:

NAME	Thiacyclohexane							STRUCTURAL FORMULA				
Mole % Pur. 99	. 9	Rei	Mo Fo	lecul		Molecular Weight 102.19						
		<del></del>	1	Ref		1	Ref.				Ref.	
E B •6	1	10.	···	31		<del> </del>	Kei.		1	T		
F.P. *C F.P. 1009	4	19.0	79	13.	dt/dP *C/mm	1		1	290 to 350 •K	0.1712 0.0 <sub>3</sub> 66		
B. P. *C	Ť			1	25°C	2.1809	5	g	727 - 47			
760 mm	-	141.7	75	3	BP	0.05019	5	h		0.0616	1	
100	-	78.2	28	3	<sup>t</sup> e	0.03658	5	f' g'	to to	l	l	
30 10	-	50.3 29.0		3 5	30 mm	0.6989	5	h'	<u>w</u>	l	1 1	
i		-6.		5	∆Hm cal/g	5, 73	31		T		+	
Pressure	7			$\vdash$	ΔHv cal/g	-		m	390 to	-0.1362 0.0015		
mm 25°C	1	7.9	256	5	25°C 30 mm	100.03	5	0 !	347 —-	-0.0665		
t <sub>e</sub>		1140.5	5	5	BP	97.08 84.14	31			ļ	$\vdash$	
Density					t <sub>e</sub>	81.93	5	m'	to •K			
g/ml 20°0	3		9856	2	1 'e (u, e)	81.85	5	0'		1		
dt 25	-		9810 9764	2 4	ΔHv/T <sub>e</sub>	19.42	5				Н	
	1		040	4	d 75 to	104.20	5		ace tension s/cm. 20°C	34.94	5	
ь		-0.0		4			5	*	30	33.65	5	
Ref. Index					e' 75 °C	102.94 0.1164	5		40	32, 39	5	
n <sub>D</sub> 20°0	۱ ۵		067	2	d <sub>c</sub> g/ml	0, 332	5	Par	achor [P]			
25			5041 5016	2 4	vc ml/g	3.011	5		20°C 30			
"C"	+		759	1	v <sub>c</sub> ml/g t <sub>c</sub> °C	379.	5	ı	40			
	+				P <sub>c</sub> mm	33708.	5	S = 5	<ol> <li>Sugd.</li> </ol>	252, 1	5	
MR (Obs. MR (Calc.		30.8 30.7		4 5	PV/RT			Exp	. L.1.%/wt.		1	
(nD-d/2)			139	4	25°C 30 mm	1.0000	5	D:	u.		١, ١	
Dielectric	:				BP	1.0000 0.9620	5		persion	114.	2	
A 50 to	,	6 9	0518	3		0.9508	5		sh Point *C Point			
B (210 °C		1422.4		3	t e t c	0. 255	5				$\vdash$	
С		211.7	718	3	AHc kcal/m	-930.26	31		Spec. a V.			
A* 50 to			5671	5	ΔHf ΔFf	25, 18	31	X-R	ay Dif.			
B*[175_*C	-	1329.9	,	5	Viscosity	<del> </del>	$\vdash$		ared		$\sqcup$	
c	_				centistokes				bility in		l	
t <sub>k</sub> te					η <b>·</b> c	1			etone rbon tet.			
<u> </u>				$\sqcup$				Be	nzene			
A'   0 to B'   50 °C	-	7.1 1570.3	8029	5			<u> </u>		her			
c	-	225.	,	5	B <sub>v</sub> to				Heptane hanol			
A1# 0 to	, †	1.6	3543	5	Ă l °C		1	Wa	ter			
B'* 50 °C		1474. 1		5	(B <sup>V</sup> )  to			Wa	ter in	ļ	<u> </u>	
Ac 210 to	T	7.3	2621	5	(A <sup>V</sup> )  °C		İ				1	
Bc tc C	2	1805.6	<b>5</b>	5	c liq.300 °K	0, 38361	31	1			1	
	+	266.		5		0.42181	31				1	
Cryos. A' consts. B'		0.0	004	2	c <sub>p</sub> vap400°K 500	0. 35029 0. 43916	31			Ì		
t <sub>e</sub> °C	<u></u>	157.9	4	5	c <sub>v</sub> vap.		<u> </u>	L	41.55	L	<u> </u>	
T <sub>R</sub> = 0.7			D-	<u> </u>	DI 1 111	61 ( :			ams/100 gra		nt	
REFEREN	C.E	ಎ: 1-	DOM.		PI 3-Lit. 4-	Caic. from de	t. da	112 5·	-Caic. by for	muia		
SOURCE:	_				PI							
PURIFICA					PI	<del> </del>				<del></del>		
LITERATU	JR	E RE	FERE	NCES	5: 3 Ind. Eng	. Chem. <u>44</u> , 1	430	(1952),	P. T. Whit	e et al;		
3' J.A.C.	s.	<u>76,</u> 20	661 (1	954)	McCullough et	al.						
1												

No. 2 NAME 2-Methylthiacyclohexane STRUCTURAL FORMULA H2Ç CH2 Tetrahydro-2-methyl-1-thiapyran , chcнз Molecular C6H12S Molecular Mole Ref % Pur. 99.2 Weight 116, 216 3 Ref. Ref Ref. F.P. \*C F.P. 100% -58.14 2 dt/dP ſ to °C/mm ۰ĸ g 25°C 3.2182 B. P. \*C h BP 0.0521 2 760 mm 153.04 3 0.03722 5 ſ to 100 87.24 3 g' •ĸ 30 58.35 3 0.7223 5 30 mm 10 36.37 h' ∆Hm cal/g -0.2694 5 1 to ΔHv cal/g Pressure n •K 25°C 89.88 86.74 mm 25°C 5, 2566 5 o 30 mm 5 1172.0 5 te 75.03 BP to m Density g/ml 20°C 5 72.87 te te (d, e) •ĸ 5 n' 0.9428 2 72.80 0 0.9381  $\mathbf{d_4^t}$ 25 2 ΔHv/Te 5 19.06 30 0.9334 4 Surface tension 58 93.95 d to 0.9616 -0.03938 4 . dynes/cm. 20°C 29.92 5 5 5 1 171 0.1236 92.23 5 •c . ь 4 30 28.74 27.60 ð٠ 75 to 40 Ref. Index e' 58 0.0942 5 1.4905 20°C 2 [P]  $\mathbf{n}_{\mathbf{D}}$ d g/ml vc ml/g tc °C Parachor 0.316 5 25 1.4881 2 20°C 3.168 5 30 1.4853 4 30 375. 5 40 "C" 0.6854 4 P<sub>c</sub> mm 5 26344. Sugd. 288.3 5 MR (Obs.) 35.67 2 PV/RT Exp. L.1.%/wt. 5 MR (Calc.) 35.398 25°C 1.0000 5 (nD-d/2)1.0191 2 30 mm 1.0000 Dispersion 114. 2 Dielectric BP 0.9606 Flash Point °C 0.9482 6. 86962 t<sub>e</sub> A 58 to 3 Fire Point tç 1450.987 0,255 B [2]3 °C 3 M Spec. Ultra V C 210.727 3 AHc kcal/m ΔHf A\* | 58 to B\* 181 °C 1.26718 5 X-Ray Dif. **AF** 1356.2 Infrared ĸ Viscosity Solubility in c centistokes Acetone to ·c Carbon tet Benzene A' | 25 to 7. 21579 Ether B١ <u>\_58</u> <u>•</u>C 1643.3 5 n-Heptane вv C 228. to Ethanol ÃV į •c Water A1+ 25 1.61631 5 to Water in •c (BV) B1# 58 1543, 2 5 to Ac | 213 to 7.28726 5 (AV) °C Bc |\_tc\_ •c 1826.3 cp liq. ۰ĸ Сc 262. Cryos. Aº c<sub>p</sub> vap. •ĸ consts. B° c<sub>v</sub> vap. t °C 171.04 5  $T_{\mathbf{R}} = 0.75 \, T_{\mathbf{c}}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 4-Calc. from det. data 5-Calc. by formula 3-Lit. SOURCE: API PURIFICATION: API LITERATURE REFERENCES: 3 Ind. Eng. Chem. 44, 1430 (1952), P. T. White et al.

NAME				clohexane			STRUCTURAL		Α.
	Tet								
1		ranyo	ro-3-r	nethyl-l-thiapy	ran	1	CH, H₂C C	HCH3	
	1_						H <sub>2</sub> C <sub>S</sub> C	:Ha	
Mole % Pur. 99.		ef. Mo	olecula rmula		Molecular Weight 116.2	16	"'20`S	2	
70.1.01.77			Ref			Ref.			Ref.
F. P. *C	-60	1.7	2	dt/dP		1		T	1
F.P. 100%		1.	+	°C/mm	l		f to		1
B. P. °C				25°C	3.9100	5	h	1	
760 mm	158.		2	BP t <sub>e</sub>	0.0524 0.03705	2 5	f' to		
100 30		. 66 . <b>3</b> 7	2 2	30 mm	0.7336	5	g' '* <u>K</u>	1	
10	40	. 03	5	ΔHm cal/g	-	+	h'	İ	
1	2.	. 69	5	ΔHv cal/g	<del> </del>	<del>                                     </del>	m to		
Pressure mm 25°C	1 .	2904	5	25°C	90.64	5	n   <u>*K</u>		
t <sub>e</sub>	1183		5	30 mm	87.49	5			
Density	<b>†</b>		$\dagger \lnot \dagger$	BP t <sub>e</sub>	76.26 74.12	5	m' to	İ	1
g/ml 20°C		9473	2	t <sub>e</sub> (d, e)	74.09	5	n'   <u>*K</u>		
d <sub>4</sub> 30		. 9 <b>4</b> 30 . 9387	2 4	ΔHv/T <sub>e</sub>	19.15	5			┼
a	+	9645	4	d 62 to	94.81	5	Surface tension dynes/cm. 20°C	30.49	5
ь		0386	4	-e 176 °C	0.1174 92.74	5	<b>8</b> 30	29.40	5
Ref. Index		_		e'   62 °C	0.0843	5	40	28.33	5
n <sub>D</sub> 20°C	1 -	. <b>4</b> 922 . 4899	2 2	d <sub>c</sub> g/ml	0, 311	5	Parachor [P] 20°C		
30		4875	4	v mi/g	3.212 384.	5	30		1
"C"	0.	. 6828	4	1 _	27997.	5	40	200 2	5
MR (Obs.)		. 61	2	P <sub>c</sub> mm	21991.	-		288.3	+-
MR (Calc. (nD-d/2)		. 398	5	25°C	1.0000	5	Exp. L.1.%/wt.	1	İ
Dielectric	+	. 0186	2	30 mm BP	1.0000	5	Dispersion	113.	2
A 62 to	+ -	95022	: 3	t <sub>e</sub>	0.9587 0.9459	5	Flash Point C		T
B   220 °C			3	t <sub>c</sub>	0.255	5	Fire Point	<u> </u>	┼
С	214	. 985	3	ΔHc kcal/m			M. Spec. Ultra V.		
A* 62 to		. 34142	5	ΔHf ΔFf			X-Ray Dif.		1
B*[186 °C	- 1420	. 0		Viscosity	<b>†</b>		Infrared	ļ	┼—
°=				centistokes			Solubility in * Acetone	<b>so</b>	
t <sub>k</sub> to				າ •ເ			Carbon tet.	∞	
A'   25 to	7	. 28598	5				Benzene Ether	<b>80</b>	
B' 62 °C	1710	. 0	5			+	n-Heptane	<b>®</b>	1
C'	232		5	B <sup>v</sup> to C	ŀ		Ethanol Water	•	
A'* 25 to B'* 62 °C		. 67792 . 1	5	(B <sup>V</sup> )  to	·j	1	Water in	-	1
Ac  220 to	+	. 37528	5	(A <sup>V</sup> )  °C					
Bc tc C	1910	. 3	5	<del></del>	<del>                                     </del>	t	1		
Cc	268	•	5	р -			1		
Cryos. A° consts. B°				c <sub>p</sub> vap. °K					
t <sub>e</sub> °C T <sub>R</sub> = 0.7	176	. 55	5	c <sub>v</sub> vap.		<u> </u>	I		$\perp$
		D	2 .	DI 2 1 '4	C-1- (		grams/100 gra		nt
	ES: 1	-Dow		PI 3-Lit. 4- PI	Caic. from de	et. da	ata 5-Calc, by for	rmula	
SOURCE:				PI					
PURIFICAT					<u>-</u>				
LILERATU	KE KI	epek)	LNCES	o: 3 Ind. Eng.	Chem. <u>44</u> , 1	430 (	(1952), P. T. Whit	e et al.	

No. 4 4-Methylthiacyclohexane STRUCTURAL FORMULA NAME CHCH3 Tetrahydro-4-methyl-1-thiapyran HZC SCHE Molecular C6H12S Ref. Molecular Mole % Pur. 99.8 Weight 116.216 Formula Ref. Ref Ref F.P. C -28.1 2 dt/dP to °C/mm <u>•ĸ</u> g 25°C 4.0139 B. P. °C h BP 0.05270 5 760 mm 158,64 2 0.03728 ſ 5 to 100 92.07 2 g' •K 30 mm 30 2 5 62.82 0.7315 10 40.56 5 h' AHm cal/g 3.43 5 to ΔHv cal/g Pressure n •K 25°C 91.55 mm 25°C 4.1375 o 30 mm 87.98 5 t<sub>e</sub> 1186.4 5 BP 76.06 Density g/ml 20°C m' 1 to 73.80 5 te (d, e) ٠ĸ n' 0.9471 2 73.73 5 o'  $\mathbf{d_4^t}$ 25 0.9427 2 ΔHv/Te 19.04 5 30 0.9383 4 Surface tension d 95.80 5 62 0.9647 to 4 dynes/cm. 20°C 30.47 1 177 •c 0.1244 ь -0.0388 4 30 5 ď 29.35 to 93.91 25 40 28.26 5 Ref. Index •' 0.0944 5 62 20°C 1.4923  $\mathbf{n}_{\mathbf{D}}$ Parachor [P] dc g/ml vc ml/g tc °C 0.315 5 25 1.4899 2 20°C 3, 179 30 1.4874 4 30 385. 5 40 "C" 0.6846 4  $P_c$  mm 27013. 5 Sugd. 288.3 5 MR (Obs.) 35.62 2 PV/RT Exp. L.1.%/wt. MR (Calc.) 35.398 25°C 1.0000 (nD-d/2) 1.0188 2 30 mm 1.0000 Dispersion 113. 2 Dielectric ВP 0.9593 5 Flash Point °C t<sub>e</sub> 0.9463 A 62 to 6.87976 Fire Point 0.252 1220 °C 1474.821 M Spec. C 210.162 AHc kcal/m 3 Ultra V ΔHf A\* 62 to 1.27377 5 X-Ray Dif. ΔFf B\* 187 °C 1379.3 Infrared Viscosity Viscos., centistokes °C Solubility in Acetone Carbon tet. 00 •c Benzene 00 A' 25 to 7, 23280 Ether 00 1673.9 <u>∟62 °C</u> n-Heptane 00 B<sup>V</sup> | C' 228. to Ethanol •c Water A1# 25 to 1.62988 Water in (BV) B1# 62 °C 1573.0 to Ac | 220 to 7.29810 5  $(A^{V})_{1}$ •c Bc tc C 1857.2 cp liq. •ĸ Cc 263. Cryos. Aº ٠ĸ c<sub>p</sub> vap. consts. B° c, vap. te °C 177.38 5  $T_{\mathbf{R}} = 0.75 \, \mathbf{T_c}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES: 3 Ind. Eng. Chem. 44, 1430 (1952) P. T. White, et al.

No. 1 m-Nitrobenzotrifluoride STRUCTURAL FORMULA NAME a, a, a - Trifluoro - m - nitrotoluene Mole Ref. Molecular C7H4F3NO2 Molecular Weight 191,110 % Pur. Ref Ref F.P. C F.P. 100% -132. 3 dt/dP f to \*C/mm 25\*C •K g 45.28 5 B. P. \*C h ВP 0.0529 760 mm 202.75 135.10 3 0.0350 5 ſ١ t, to 100 4 g' •<u>к</u> 30 104.82 4 30 mm 0.7614 4 10 81.6 4 h! ∆Hm cal/g 5 42 to m ∆Hv cal/g Pressure •ĸ n 25°C 72.03 0.2835 mm 25°C 5 a 30 mm 65.05 1277. 5 t<sub>e</sub> 55.03 BP 4 m' to Density 52.94 te (d, e) 5 n' <u>•</u>K g/ml 20°C 52.78 ۰' dt4 25 AHv/T 20, 23 5 30 Surface tension d 105 to 75.78 5 8 dynes/cm, 20°C 225 <u>•c</u> 0.1024 5 å ь 30 74.22 to 40 Ref. Index 1 105 0.0874 5 20°C 1.4719 [P] n<sub>D</sub> Parachor dc g/ml 25 1.4697 20°C vc ml/g t\_ C 30 1.4675 3 30 tc 40 "C" 5 P<sub>c</sub> mm 307.3 Sugd. MR (Obs.) PV/RT Exp. L. l. %/wt. MR (Calc.) 25°C 1.0000 5 u. (nD-d/2)30 mm 1.0000 Dispersion Dielectric 0.9389 30, 17 3 BP Flash Point C 0.9180 A 105 to 7.18025 te tc 3 Fire Point 1710.60 B 1320 °C 2 M. Spec. С 195.12 3 AHc kcal/m Ultra V. AHI A+ 105 to 1.79365 5 X-Ray Dif. ΔFf B\*[235 °C 1621.98 Infrared Viscosity ĸ Solubility in c centistokes Acetone to Carbon tet. لغ •c Benzene A' | 25 to 7.53955 Ether B; 1105\_°C 1932.93 n-Heptane B<sup>V</sup> | 214.02 5 to •C Ethanol Water A1# 25 to 2.13992 5 Water in B'\*105 °C 1834.57 (B<sup>V</sup>) to Acl (A<sup>V</sup>) °C Bc t<sub>c</sub> •c c<sub>p</sub> liq. •ĸ Cc Cryos. A\* •ĸ cp vap. consts. Be c, vap. f .C 224.76 5 grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 5-Calc. by formula 4-Calc, from det, data SOURCE: Lit. **PURIFICATION:** Lit. LITERATURE REFERENCES: 3 J.A.C.S. 75, 1997 (1953) Kardon and Saylor

No. 2 2-Chloro-5-Nitrobenzotrifluoride STRUCTURAL FORMULA NAME 2-Chloro-a, a, a-trifluoro-5-nitrotoluene Molecule C7H3CIF3NO2 Mole Ref. Molecular % Pur Weight 225, 559 Ref. Ref. Ref. F, P. 21.7 3 dt/dP to •K F.P. 100% °C/mm g 25°C B. P. °C 196.5 5 h BP 0.05570 760 mm 231.88 3 f 0.03550 5 te to 100 160.70 4 g¹ •ĸ 30 128.89 4 30 mm 0.7995 10 104.40 5 h' ∆Hm cal/g 63,05 5 to m AHv cal/g Pressure •K 25°C 30 mm n 67.81 mm 25°C 0.0588 5 ٥ 59.28 5 t<sub>e</sub> 1343.2 5 BP 5 49.38 m' to Density 5 te (d, e) 47.32 g/ml 20°C n' •ĸ 5 46.42 d4 AHV/T 20.11 5 30 1.5043 3 Surface tension 128 71.67 0.0961 d to 5 27.86 dynes/cm. 20°C 250 •c 5 Ъ 30 ď 69.86 to 2.0 40 Ref. Index e¹ •C 0.0821 128 20°C [P]  $\mathbf{n}_{\mathbf{D}}$ Parachor d g/ml vc ml/g tc °C 25 20°C 30 30 40 "C" P<sub>c</sub> mm Sugd. 344.5 5 MR (Obs.) PV/RT Exp. L.1.%/wt. MR (Calc.) 41.522 5 25°C 1.0000 5 (nD-d/2)u. 30 mm 1.0000 5 Dispersion Dielectric BP 0.9300 5 Flash Point °C 0.9097 te 5 128 to Fire Point 7.15409 3 1779.91 [310 °C M Spec. Ultra V. C 184.64 3 AHc kcal/m ΔHf A\* | 128 to 1.83498 5 X-Ray Dif. ΔFſ B\* 270 °C 1694.27 Infrared ĸ Viscosity Solubility in centistokes Acetone to Carbon tet. \*C Bensene A' 10 to 7.60270 5 Ether <u>128 °C</u> 2075.9 n-Heptane  $\mathbf{B}^{\mathbf{v}}$ 5 210.0 to Ethanol ÃV i A'# 20 •c Water 2. 26106 Water in B'# 128 °C 1975.7 (BV) to Ac (AV) °C t<sub>c\_</sub> Bc •c cp liq. ۰ĸ Cc Cryos. Aº •ĸ c<sub>p</sub> vap. consts. B° c, vap. te °C 257,47 5 grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: Lit. **PURIFICATION:** Lit. LITERATURE REFERENCES: 3 J.A.C.S. 75, 1997 (1953) Kardon and Saylor

NAME	4-Chl	oro-3	-nitr	obenzotrifluorio	le	T	STRUCTURAL FO	No. 3
NAME				-trifluoro-3-nit			CF <sub>3</sub>	JKWO DA
Mole % Pur.	Ref			C7H3F3CINO		59	C <sub>C</sub> I NO.	2
			Ref.			Ref.		Ref.
F.P. °C F.P. 100	-2.5	4	3	dt/dP *C/mm			f to	
B. P. °C 760 mm 100 30	222.5 153.1 122.1	5	3 4 4	25°C BP t <sub>e</sub> 30 mm	142.51 0.0543 0.0348 0.7800	4 4 5	h   to g'   'K	
10	98.3	0	4	ΔHm cal/g		+ -	h'	
Pressure mm 25°C	0.0 1334.3	808	5 5 5	ΔHv cal/g 25°C 30 mm BP	68, 04 58, 84 49, 31	5 5 5	m to to K	
Density g/ml 20°0 dt 25 d4 30	5			t <sub>e</sub> (d, e) ΔHv/T <sub>e</sub> d 125 to	46.89 46.97 21.33 70.43	5 5 5	n' K o' Surface tension	
a b Ref. Inde:			$\square$	_e2 <u>55</u> •C d' 20 to	0.0949 70.40	5	dynes/cm. 20°C 30 40	
n <sub>D</sub> 20°0 25 30	1.4 1.4	895 874 852	3 4 3	e'   125 °C d <sub>c</sub> g/ml v <sub>c</sub> ml/g t <sub>c</sub> °C	0.0947	5	Parachor [P] 20°C 30 40	
MR (Obs. MR (Calc (nD-d/2)	.)			P <sub>c</sub> mm PV/RT 25°C 30 mm	1.0000 1.0000	5	Sugd. 3- Exp. L.1.%/wt. u. Dispersion	44.5 5
A 122 to B 360 °C	7.1	5778	3 3	BP te tc	0.9400 0.9215	5	Flash Point *C Fire Point	
A* 122 to B* 260 °C	183.9	2994	3 5 5	ΔHc kcal/m ΔHf ΔFf Viscosity			M. Spec. Ultra V. X-Ray Dif. Infrared	
c t <sub>k</sub>   -t <del>c</del> t <sub>x</sub>   •6				centistokes 7 °C			Solubility in Acetone Carbon tet, Benzene	
A'   20 to B'   122 'C	203. 2	3	5 5	B <sup>V</sup> to A <sup>V</sup> · *C			Ether n-Heptane Ethanol Water	
A'* 20 to B'* 122 °C	1871.3	9002	5 5	(B <sup>V</sup> )  to			Water in	
Bc tc				c <sub>p</sub> liq. *K				
Cryos, A consts, B	<u> </u>			c <sub>p</sub> vap. *K				
t <sub>e</sub> °C	247.2	2	5	c <sub>v</sub> vap.	<u> </u>	<u></u>	grams/100 grams	s solvent
REFEREN	CES: 1-	Dow	2-A	PI 3-Lit. 4-0	Calc, from de	t, de	ata 5-Calc. by form	
SOURCE:			Li	t.				
PURIFICA	TION:		Li	t				
LITERAT	URE REI	FERE	NCES	5: 3 J.A.C.S.	<u>75</u> , 1997 (19	)5 <b>3</b> ) I	Kardon and Saylor	
1								

							No. 4
NAME	Phenylhy	drazin	e		i	STRUCTURAL FO	ORMULA
ļ [							
<del></del>					$\dashv$	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	HNHg
Mole	Ref. N	Aolecul	ar C6H8N2	Molecular	- 1	$\sim$	
% Pur. 99.	63 1 1	Formul	a 6 18 12	Weight 108.1	40		
		Ref.			Ref		Ref
F, P. *C	19,60	1	dt/dP			f to	
F.P. 100%	19.79	1	°C/mm			8 L*K	l
B. P. *C			25°C BP	400.3	5	h ;	1
760 mm 100	243.09 172.11	1 1	t.	0.05500 0.0345	5	fi to	
30	139.9	1 5	30 mm	0.8122	5	8'   'K_	ļ
10	115.0	5	ΔHm cal/g	31.04	4	h'	ĺ
1	72.8	5	ΔHv cal/g		<u> </u>	m l to	i
Pressure	0.027	,   .	25°C	147.08	5	n   •K	l
mm 25°C	0.0278	5 5	30 mm	128.7	5	°	İ
Density	+	+	BP	107.68	5	m¹   to	
g/ml 20°C			te (d, e)	102.44	5	n'*K_	
t 25	1.094	15 1	ΔHv/T	20.58	5	0'	
<u> </u>	1.080	<del></del>	d   140 to	157.26	5	Surface tension	
a b	1.1151 -0.0 <sub>3</sub> 82				5	dynes/cm. 20°C	53.57 5
Ref. Index	-0.030	<del></del>	a' 725 to	151.08	5	30 40	51.97 5 50.41 5
n <sub>D</sub> 20°C	1.608	37 1	•'   140 °C	0.1598	5	Parachor [P]	
D 25	1.606	04   1	d <sub>c</sub> g/ml			20°C	
30	1.594	55 1	vc ml/g	ļ		30	l
"C"	0.790	0 4	Pcmm	1		N = 12.5 Sugd.	266.3 5
MR (Obs.)	34.054	4	PV/RT	<b></b>	-	Exp. L.1.%/wt.	
MR (Calc.) (nD-d/2)		08 <b>4</b>	25°C	1,0000	5	u.	į
	1.0590		30 mm	1.0000	5	Dispersion	1
Dielectric	7.106	1	BP t	0.9218 0.9007	5	Flash Point °C	
A 140 to B _335°C		24 4				Fire Point	
c Care	193.	5	AHc kcal/m			M Spec.	
A*   140 to	1.774	54 5	ΔHf		l	Ultra V. X-Ray Dif.	İ
B+ 280 °C		5	ΔFÍ		L_	Infrared	ì
K	1	ŀ	Viscosity			Solubility in +	
i <sub>k</sub>	-[		r centistokes	13.393	1	Acetone	ŀ
Ç C	į.	- 1	40	6, 2138	1	Carbon tet. Bensene	i
A1 25 to			60	dec.	1	Ether	1
B' 140 °C	2232.5	5 5	B <sup>V</sup> to	<del> </del>	<del>                                     </del>	n-Heptane	
	<del></del>		B to			Ethanol Water	
A'* 25 to B'* 140 °C	2.113	59 5	(BV) to	1		Water in	
Ac   335 to	7, 823	<del></del>	(A <sup>V</sup> ) •C	1			
Bc t C	2434.5	5		<del>                                     </del>	-	1	
Cc	251.	5	c <sub>p</sub> liq. •K	1			
Cryos. A° consts. B°	0.019	72 1	c <sub>p</sub> vap. *K	1			
	2/0.70	+-	c, vap.				
t <sub>e</sub> °C	268.79	5	I V	L	<u> </u>	<u> </u>	
$T_R = 0.7$			·			grams/100 gram	s solvent
REFERENC	ES: 1-Dow	2-A1	PI 3-Lit. 4-0	alc. from de	t. da	ta 5-Calc, by form	ula
SOURCE:		Do	₩				
PURIFICAT	ION:	Do	~				
LITERATU	RE REFER	ENCE	S:				
1							
ł							
1							

NAME	p-Phenetic	line			_	STRUCTURAL FORMULA				
Mole % Pur. 99.	Ref. Mol	lecul:		Molecular Weight 137, 17	76	OC2 H5				
		Ref.			Ref.	Re				
F.P. °C	4.65	1	dt/dP			f to				
F.P. 1007 B.P. °C		$\vdash$	*C/mm 25*C	1064.8	5	g '* <u>K</u>				
760 mm 100	248.59 178.92	1 1	BP t <sub>e</sub>	0.05449 0.03405	5	f' to				
30	147.76	4	30 mm	0.7832	4	g' ' <u>°K</u>				
10 1	123.8 83.1	5	ΔHm cal/g	19.80	4	h' i				
Pressure mm 25°C t <sub>e</sub>	0.0092 1377.2	5	ΔHv cal/g 25°C 30 mm BP	131.35 109.25 88.09	5 5 5	m   to				
Density g/ml 20°0 dt 25 d4 30	1.06117 1.05680 1.05243	1 1 4	t <sub>e</sub> (d, e) ΔHv/T <sub>e</sub>	83.79 82.35 20.97	5 5 5	m' to				
a b	1.07865 -0.0 <sub>3</sub> 874	4 4	d 148 to e 260 °C d' 20 to		5 5 5	Surface tension dynes/cm. 20°C 40.2 1 30 39.25 1 40 38.25 1				
Ref. Index n <sub>D</sub> 20°0 25 30		1 1 1	d g/ml vc ml/g tc °C	0.1800	5	Parachor [P] 20°C 325.5 4 30 326.2 4				
"C"	0.6905	4	P <sub>c</sub> mm		İ	40 326.5 4 O=20 N=12.5 Sugd. 334.7 5				
MR (Obs. MR (Calc. (nD-d/2)	) 41.496 1.03043	4 5 4	PV/RT 25°C 30 mm	1.0000	5	Exp. L.1.%/wt. u. Dispersion				
A 148 to	7.16534	4 4	BP t te tc	0.9259 0.9033	5	Flash Point <sup>6</sup> C Fire Point				
B 1300 °C C	160.0	4 5	ΔHc kcal/m ΔHf ΔFf			M. Spec. Ultra V. X-Ray Dif.				
B* 285 °C K c t <sub>k</sub> to	-	5	Viscosity centistokes 7 20 °C	13.532 5.4381	1 1	Solubility in + Acetone Carbon tet.				
A'   20 to B'   148 °C	2216.5	5	60 80	2. 9766 1. 9206	ļi.	Benzene Ether n-Heptane				
C' A'* 20 to B'* 148 *C		5 5 5	$ \begin{array}{c c} B^{V} & to \\ A^{V} & C \\ \hline (B^{V}) & to \end{array} $	-		Ethanol Water Water in				
Acl to Bc t <sub>c</sub> *C			(A <sup>V</sup> )  °C c <sub>p</sub> liq. °K							
Cryos, A'consts, B'		1	c <sub>p</sub> vap. *K							
t <sub>e</sub> °C	274.79	5	c <sub>v</sub> vap.		l	grams/100 grams solvent				
REFEREN	CES: 1-Dow	2-A	PI 3-Lit. 4-	Calc. from de	t. da	ata 5-Calc, by formula				
SOURCE:		Dov	v							
PURIFICA	TION:	Dov	v Dist. Chroma	t.						
LITERAT	JRE REFERE	NCE	5:							

No. 6 NAME N-Butyla cetanilide STRUCTURAL FORMULA N(C4H9)COCH3 Molecular C12H17NO Mole Ref. Molecular % Pur. 99.74 Weight 191.264 Ref. Ref. Ref. F.P. C F.P. 100% 24.47 1 dt/dP f to 24.54 1 •C/mm °K g 25°C 2082.0 B. P. °C h ВP 0.06029 760 mm 281.07 1 0.0362 5 ſ 100 203.40 to 1 £' •K 30 168.4 4 30 mm 0.8822 4 10 141.4 5 h' AHm cal/g 22.07 4 95.7 1 to ΔHv cal/g m Pressure •ĸ n 25°C 90.35 mm 25°C 0.00491 5 ٥ 30 mm 76.55 1439. ŧ, 5 BP 62.83 5 to m' Density g/ml 20°C 5 te (d, e) 59.66 •ĸ 0.99115 0.98707 'n 5 59.04 0 25 d4 AHV/Te 5 19.49 30 0.98313 4 Surface tension 160 to 97.07 5 1.00745 35.96 dynes/cm. 20°C 1 \_300 °C 25 to 0.1218 92.76 5 ъ -0.03802 4 30 34.96 1 ď٠ ī 40 33.88 1 Ref. Index •' 160 °C 0.0962 5 1.51457 20°C [P] ďc Parachor  $\mathbf{n}_{\mathbf{D}}$ g/ml 0.311 5 25 1.51246 472.6 20°C vc tc 5 ml/g 3.21 30 1.50772 30 473.1 4 ·c 494. 5 473.2 4 40 "C" P<sub>c</sub> mm 19880. 5 468.4 5 Sugd MR (Obs.) 58.150 PV/RT Exp. L.1.%/wt. MR (Calc.) 58. **336** 1.0000 25°C 5 (nD-d/2)1.01900 4 30 mm 1.0000 Dispersion Dielectric 11.66 1 BP 5 Flash Point °C t<sub>e</sub> 0.8836 5 170 to 7.32668 Fire Point 0,255 2085.31 tç \_380 °C M Spec. C 188.08 ΔHc kcal/m Ultra V. ΔHf 1.9292 A\* | 168 to 5 X-Ray Dif. ΔFf B+ 320 °C 2000.0 5 Infrared ĸ Viscosity Solubility in centistokes Acetone to 20 °C 16.2754 1 Carbon tet. •c 40 6.6868 1 Bensene 3.6049 60 ı 60 to 7.6952 Ether 2, 2885 80 B١ <u> 170 ℃</u> 2356.3 n-Heptane C١ 210.5 5 Ethanol Ã۷ I 2.2568 ·c Water A'+ 60 to 5 (BV) 55 Water in B'\* 170 °C 2250.0 5 to 1124.8 4 Ac | 380 to 9.2820 (AV) 5 90 •c 3. 18632 Bc tc C 4975. liq. •ĸ c<sub>D</sub> 504.3 Cryos. A\* 0.02275 ı c<sub>p</sub> vap. •ĸ consts. B. te C c, vap. 312.16 5  $T_{R} = 0.85 T_{C}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det, data 5-Calc. by formula SOURCE: Dow **PURIFICATION:** Dow LITERATURE REFERENCES:

NAME	)	Methy	/l ant	thran	ilate			STRUCTURAL FORMULA			
	c	-Am	ino r	nethy	lbenzoate				NH2		
Mole % Pur. 99		Ref.	Mol For	ecul		Molecular Weight 151,16	50		U	5020113	
				Ref.			Ref.				Re
F.P. °C		4. 42	_	1	dt/dP *C/mm			f g l	to *K		
B. P. *C					25°C BP	646.0 0.05897	5	h			
760 mm 100		59.82 34.19		1 1	te	0.03575	5	f'	to		Г
30		50.23		4	30 mm	0.8551	4	g'	<u></u>		
10 1		24.20 30.0	'	5	ΔHm cal/g	18.73	4	<u>h'</u>			_
Pressure	+ •	,0.0		┝╧┪	ΔHv cal/g			m   n	to to		1
mm 25°C		0.01	69	5	25°C 30 mm	107.08	5	.			1
t <sub>e</sub>	142	27.0		5	BP BP	91.90 79.11	5	m'			+-
Density	.	,	725	١. ا	t <sub>e</sub> ,	72.69	5	n'	to K		
g/ml 20°0	1	1.16		1 1	t <sub>e</sub> (d, e)	74.45	5	0'			
dt 25 4 30		1.15		4	ΔHv/T <sub>e</sub>	19.18	5	Surface	tension		$\dagger$
		1.18	493	4	d 150 to e 270 °C	109.45 0.1167	5		m. 20°C	44.12	1
ь	<del></del> :	<u>·0.0</u> 3	884	4	d' 25 to	110.11	5	*	30 40	43.02 41.92	1
Ref. Index		1.58	227	١, ١	e'   150 °C	0.1212	5	<u> </u>		41.72	+÷
<sup>n</sup> D 20°0	1	1,58		1 1	d <sub>c</sub> g/ml			Parach	20°C	333, 76	4
30	Щ.	1.57	856	4	vc ml/g tc *C				30	334.18	4
"C"		0.65	09	4	P <sub>c</sub> mm				40 Sugd.	334.6 340.1	4 5
MR (Obs. MR (Calc.		3.30		4	PV/RT	<b>†</b>	<del>                                     </del>	Exp. L	.1.%/wt.	3.0	Ť
(nD-d/2)	'  ª	13.51 0.99		5	25°C	1.0000	5	i	u.		
Dielectric	+-	3, 72			30 mm BP	1.0000 0.9325	5	Disper			<u> </u>
A 150 to		7, 24		4	t <sub>e</sub>	0.8949	5	Flash I Fire P	Point °C		
B   260 °C		53.72		4	`c	<u> </u>		M. Spe			+-
c		0. 35		4	ΔHc kcal/m ΔHf	ŀ		Ultra V			
A*  150 to B*  320 °C K		1.71 55.73		5	ΔFf	<u> </u>	<u> </u>	X-Ray Infrare			
c	1				Viscosity centistokes		1	Solubil			
t <sub>k</sub> $\lceil -t \rceil$					η 20 °C	7, 1420	1	Aceto Carbo			
,   x					40 60	4.5046 2.6784	1 1	Benze			
A'   20 to B'   150 °C		7.57 96.85		5 5	80	1.7855	ļi.	Ether n-Hep	tane		
c'		0.0		5	B <sup>V</sup>   15 to A <sup>V</sup>   45 °C	1533.4	4	Ethan			
A1# 20 to		2.04		5	Hv	5.76095	4	Water Water		0.285 1.128	1 1
B'* 150 °C		3.53		5	(B <sup>V</sup> )  55 to	1036.3	4	Water		1.128	+÷
Acl to Bc to C					(A <sup>V</sup> )  85 °C c <sub>p</sub> liq. °K	3.31773	4				
Cryos, A'		0.01	619	1	c <sub>p</sub> vap. *K						
t, °C		9.95		5	c <sub>v</sub> vap.						
≠ Taking	C = 0	as d	ouble	bon	d and conjugate	:d		† gram	s/100 gra	ms solve	nt
REFEREN	CES:	1-0	)ow	2-A	PI 3-Lit. 4-	Calc, from de	et. da	ta 5-Ca	lc. by for	mula	
SOURCE:				De	) <b>W</b>						
PURIFICA	TION	:		Di	stillation						
LITERATI	JRE	REF	ERE	NCE	<b>5:</b>						

No. 8 STRUCTURAL FORMULA NAME Ethyl anthranilate o-Amino ethyl Benzoate NH<sub>2</sub> CO2 C2 H5 Molecular C9H11NO2 Molecular Mole Ref. % Pur. 99.77 Weight 165,186 Ref. Ref. F.P. °C F.P. 100% 14.30 ı dt/dP f to °C/mm g <u>•</u>K\_ 14.37 1 25°C 1895.3 B. P. °C h BP 0.0607 760 mm 268.84 1 ſ١ to 0.0379 5 100 192.8 4 g¹ •ĸ 30 159.0 5 30 mm 0.8473 10 133.2 5 h' AHm cal/g 31.97 4 5 90.1 to ΔHv cal/g m Pressure •<u>K</u> n 25°C 115.18 5 mm 25°C 0.0049 5 o 30 mm 88.39 5 1392. t<sub>e</sub> 5 ВP 70.00 to m ١ Density 64.74 5 te te (d, e) •ĸ g/ml 20°C n' 1.11788 64.86 o' 25 30  $d_4^t$ 1.11348 AHV/T 18.67 5 1.10908 4 Surface tension 1 160 115.01 5 to 1.13548 4 dynes/cm. 20°C 39.62 1 <u>| 300</u> •c 0.1674 5 . ь -0.0388 4 a٠ 30 38.75 1 to 25 120.18 1 40 37.75 1 e¹ Ref. Index j 160 •c 0.1999  $\mathbf{n}_{\mathbf{D}}$ 20°C 1.56503 1 Parachor [P] d<sub>c</sub> g/ml 25 1.56234 370.9 20°C vc ml/g 30 1.55780 1 30 371.6 4 40 372, 1 4 "C" 0.6958 4 P<sub>c</sub> mm Sugd. 379.5 5 MR (Obs.) 48.098 4 PV/RT Exp. L.1.%/wt. MR (Calc.) 46, 126 25°C 1.0000 5 (nD-d/2) 1.00609 4 30 mm 1.0000 Dispersion Dielectric 0.9181 4.140 1 BP Flash Point °C 0.8736 6. 92119 160 to 1 Fire Point tc B 1320 °C 1734.75 M Spec. Ultra V C 159.67 AHc kcal/m ΔHf A\* | 160 to 1.50060 5 X-Ray Dif. **AFf** B+ 1310 °C 1668.5 Infrared ĸ Viscosity Solubility in c centistokes Acetone 20 °C to 9.4307 ·c Carbon tet. 4.5646 40 Benzene 2.7268 60 A1 25 to 7, 26417 Ether 100 1.8452 В' (160 ℃ 1960.2 5 n-Heptane C١ 179.7 5 30 to 1087.83 Ethanol A | 90 •c 3.18613 Water A'\* 25 to 1.80529 5 (BV) Water in B'\* 160 °C 1876.8 to (A<sup>V</sup>) Ac to °C Bc •c cp liq. •ĸ Cryos. A. 0.03218 1 c<sub>p</sub> vap. °K consts. B° r° .C c, vap. 299.6 5 grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: Dow PURIFICATION: Distillation LITERATURE REFERENCES:

Tetrahydro-p-isoxasine	NAME	Morpholin	e				STRUCTURAL	No. 9 FORMULA		
Mole   Ref.   Ref.   Formula   C4H9NC   Molecular   Ref.	I MAME			sovazine		$\neg$	H NH			
Ref.   Ref.	<del> </del>	Tettaliyui	0-p-1	- T	· · · · · · · · · · · · · · · · · · ·	$\dashv$	н2 Ç ТСС	H2		
F. P. *C		Ref. Mo	lecul rmula	C4H9NO		,	H2Ċ, O,Ċ	H <sub>2</sub>		
F. F.   100%   B. P.   C   760 mm   128,29   1   100   70,54   1   30   mm   0,6489   4   1   30   mm   0,6489   4   1   30   mm   0,6489   4   1   30   mm   0,6489   4   1   30   mm   0,6489   4   1   30   mm   0,6489   4   1   30   mm   0,6489   4   1   30   mm   0,6489   4   1   30   mm   0,6489   4   1   30   mm   0,6489   4   1   30   mm   0,6489   4   1   30   mm   0,6489   4   1   30   mm   0,6489   4   1   30   mm   0,6489   4   1   30   mm   10,000   5   30   mm   118,44   5   mm   0,6489   4   30   mm   10,648   5   mm   0,6489   4   30   mm   10,648   5   mm   0,6489   4   30   mm   10,648   5   mm   0,6489   4   30   mm   10,648   5   mm   0,6489   4   30   mm   10,648   5   mm   0,6489   4   30   mm   10,648   5   mm   0,6489   4   mm   0,6489			Ref.		I	Ref.		P	₹eſ,	
F. P. 100%   B. P. "C   128, 29   1   100   70,54   1   1   100   70,54   1   1   100   70,54   1   1   100   70,54   1   1   100   70,54   1   1   100   70,54   1   1   100   70,54   1   1   100   70,54   1   1   100   70,54   1   1   100   70,54   1   1   100   70,54   1   1   100   70,54   1   1   100   70,54   1   1   100   100   1   100   1   100   1   1	F. P. °C		1	dt/dP			f to			
BP	F.P. 100%				!		1 1 1 1 1 1 1			
100 mm			١.١				h			
30										
Pressure mm 25°C   10.08   5   AHm cal/g   39,77   4	30	44.73	4	_	0.6489	4	g' <u>K</u>			
Pressure				ΔHm cal/g	39.77	4	h'			
mm 25°C   10.08   5   6   1082.6   5   8P   1011.64   5   6   1082.6   5   8P   1011.64   5   7   7   7   7   7   7   7   7   7		-31.0	1	ΔHv cal/g						
The continue of the continue		10.08	5							
Density g/ml 20°C	te	1082.6	5						_	
Second Columbia   Second Col	Density			t.	99.51	5				
A   30   0.99084   4   AHV/Te   20.935   5   Surface tension dynes/cm. 20°C   37.84   1   1.01970   4   c   1.35   °C   0.2010   5   30   36.50   1   1.5   10   123.36   5   5   40   35.14   1   1.5   10   123.36   5   5   40   35.14   1   1.5   10   1.5   10   1.3   10   1.5   1.5					1			İ		
a				ΔHv/T <sub>e</sub>	20,935	5	Surface tension			
B								37.84	1	
Ref. Index   1.45480   1	ь	-0.00096	14				<b>8</b> 30	36.50		
So			,				l	35.14	1	
Sol	<sup>n</sup> D 25			d <sub>c</sub> g/ml				216.0	4	
NR (Obs.)   23.617   4   P <sub>C</sub> mm   O = 20   Sugd.   213.8   5   MR (Calc.)   23.685   5   (nD-d/2)   0.95457   4   30 mm   1.0000   5   Dispersion	50		1	v <sub>c</sub> ml/g			30	216.1	4	
MR (Obs.)   23.617   4   MR (Calc.)   23.685   5   MR (Calc.)   0.95457   4   25°C   1.0000   5   30 mm   1.0000   5   30 mm   1.0000   5   5   5   5   4   44 to   7.16030   4   5   5   6   5   6   6   6   6   6   6	"C"	0.5711	4	1 -						
MR (Call C)					<del> </del>	┼		2.3.0		
Dielectric   7,176				25°C						
A		<del></del>	-				Dispersion			
B   170 °C		<del></del>	1	t_						
C				tc	1	1				
As   44 to   1.48270   5			4	∆Hc kcal/m						
Note							X-Ray Dif.			
Contistokes   7   20 °C   2.2900   1   Acetone   Carbon tet.		- 1366.046	*			<del> </del>	<b> </b>			
The image of the	c	_		centistokes		ł				
A'   0 to   7,71813   5   60   1,1010   1   Ether   n-Heptane   Ethanol	t <sub>k</sub> to									
B   44 °C   1745.8   5   235.0   5   B   30 to   709.3   4   4   15 to   1.99494   5   B   44 °C   1643.4   5   (B   V   100   C   C   C   C   C   C   C   C   C	_ X		1							
C1		1			0,8430	<del>  1</del>				
B	C'	235.0	5	B 30 to			Ethanol			
Ac  to   Bc  to   C  C  C  C  C  C  C  C  C  C  C  C  C					3.91761	4				
Bc   tc   °C		1043.4	1 3	l . v .						
Cryos. A° 0.02421 1 cp vap. °K te °C 140.887 5 cv vap.  *grams/100 grams solvent  REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula  SOURCE: Dow  PURIFICATION: Distillation		.			<del> </del>	+	4			
consts. B°	Cc		L	c <sub>p</sub> nq. *K		1	•			
*grams/100 grams solvent  REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula  SOURCE: Dow  PURIFICATION: Distillation		0.02421	1							
REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula  SOURCE:  Dow  PURIFICATION:  Distillation	t <sub>e</sub> °C	140.887	5	c <sub>v</sub> vap.		<u>L</u> _	+ grama/100 ===	ma as1:::- 1		
SOURCE: Dow PURIFICATION: Distillation	REFEDEN	TES: 1-Dow	2 - 4	PI 3-13+ 4-	Calc from de					
PURIFICATION: Distillation					u					
		TION:								
MI DAG VAL ALI ERENCES:										
		NO NOI DNO		<b>5.</b>						

No. 10 Furan STRUCTURAL FORMULA NAME Furfurane Molecular C4H4O Molecular Weight 68.072 Mole Ref. % Pur. 99. 98 Ref Ref Ref. F.P. °C F.P. 100% -85.65 3 dt/dP to °C/mm <u>•ĸ</u> g 25°C 0.04359 5 B. P. \*C h BP 0.04131 760 mm 31.360 3 0.03402 5 ſ to 100 -14,085 4 g' <u>•</u>K 30 -35,14 4 30 mm 0.5080 10 -50.20 h' AHm cal/g 3 13.35 -75.6 5 to m AHv cal/g Pressure •K 25°C 96.38 mm 25°C 599.9 30 mm 0 108.52 5 te 821.4 5 BP 95.105 3 to Density m te (d, e) 94.29 g/ml ioc •K n' 0.95144 5 94.63 d<sub>4</sub> 0.94467 AHV/Te 20.93 5 20 0.93781 Surface tension ď -35 101.43 5 to 0.97864 -0.00130 dynes/cm. 20°C 22.34 \_35\_ <u>•c</u> 0.2017 ь 4 30 ď 40 Ref. Index e' 20°C 1.42140 3 [P]  $\mathbf{n}_{D}$ Parachor d<sub>c</sub> g/ml 25 20°C ml/g 30 c 30 •c t<sub>c</sub> 40 "C" 0.5973 4 P<sub>c</sub> mm 5 Sugd. 162.5 18.422 MR (Obs.) 4 PV/RT Exp. L.1.%/wt. MR (Calc.) 19.181 25°C 0.9697 (nD-d/2) 0.94568 1.0000 30 mm Dispersion Dielectric BP 0.9655 Flash Point °C 0.9630 A -35 to t. 6.97523 3 Fire Point tc B \_ 90 °C 1060.851 3 M Spec. 227.740 3 AHc kcal/m Ultra V. ΔHf 14.90 3 1.33663 5 A\* -35 to X-Ray Dif. ΔFf B\* 40 °C 1006.9 3 Infrared ĸ Viscosity Solubility in centistokes Acetone tk tx to Carbon tet. •c Benzene to A1 Ether B <u>•с</u> n-Heptane Ċ١ to Ethanol A<sup>V</sup> •c A'\* Water to Water in B'+ •c (BV) to Ac to (AV) •c Bc •c liq.1.0°K 0.3861 0.4000 Cc 21.6 Cryos. Aº cp vap. consts. te °C c, vap. 33,51 5 grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: Lit. PURIFICATION: Lit. LITERATURE REFERENCES: 3 J.A.C.S. 74, 4662, (1952) G. B. Guthrie et al.

NAME	Су	clooc	tatetra	ene			STRUCTURAL FORMULA			
Mole % Pur. 99	, 9 Re	of. M	ioleculi ormula		Molecular Weight 104.1	44	HÇ ÇH HÇ ÇH			
			Ref			Ref.		Ref.		
F.P. °C F.P. 1007	-4.	68	3	dt/dP *C/mm			f to			
B. P. °C 760 mm 100 30 10	140. 78. 50. 29.	163 42 1	4 3 4 4	25°C BP t <sub>e</sub> 30 mm ΔHm cal/g	2.195 0.04900 0.03598 0.6962 25.87	5 5 4 3	h   to g'   *K			
Pressure mm 25°C te Density g/ml 20°C	1124.	87	5 5 5	ΔHv cal/g 25°C 30 mm BP t <sub>e</sub> t <sub>e</sub> (d, e)	98. 24 95. 67 83. 60 81. 74 81. 57	5 5 5 5	m   to o o o o o o o o o o o o o o o o o			
dt 25 d4 30				ΔHv/T <sub>e</sub>	19.85	5	Surface tension			
a b Ref. Index			$\perp$	e 160 °C d' 0 to		5 5	dynes/cm. 20°C 30 40			
<sup>n</sup> D 20°0 25 30				d <sub>c</sub> g/ml v <sub>c</sub> ml/g t <sub>c</sub> °C			Parachor [P] 20°C 30			
"C"	İ			P <sub>c</sub> mm			40 Sugd. 268	3.0 5		
MR (Obs. MR (Calc. (nD-d/2) Dielectric	) 40.	156	5	PV/RT 25°C 30 mm BP	1.0000	5	Exp. L.1.%/wt. u. Dispersion	,.0 3		
A 50 to B 210 °C	7.	0692 036	6 3 3	t t t c	0.9530 0.9418	5	Flash Point *C Fire Point			
A* 50 to B* 170 °C	218.	4401	3 2 5 5	AHc kcal/m AHf AFf Viscosity			M. Spec. Ultra V. X-Ray Dif. Infrared			
				centistokes 7 °C			Solubility in * Acetone Carbon tet. Benzene			
A'   0 to B'   50 °C	1635. 2 <b>3</b> 0.		5	B <sup>V</sup> to A <sup>V</sup> C			Ether n-Heptane Ethanol Water			
A'* 0 to B'* 50 °C	1534.	6630 8	0 5 5	(B <sup>V</sup> ); to	-		Water in			
Bc t <sub>c</sub> C				c <sub>p</sub> liq. °K						
Cryos. A consts. B				c <sub>p</sub> vap. *K						
t <sub>e</sub> *C	155.	730	5	c <sub>v</sub> vap.	1	<u></u>	grams/100 grams	solvent		
REFEREN	CES: 1	-Dow	, 2-A	PI 3-Lit. 4-	Calc, from de	t. de	ta 5-Calc, by formula	<u> </u>		
SOURCE:			Li	t.						
PURIFICA	TION:		Li	t.						
LITERATI	JRE RE	EFER	ENCES	S: 3 J.A.C.S.	<u>71</u> , 1634, (1	9 <b>49)</b> ,	D. W. Scott et al.			

Diphenylmethane STRUCTURAL FORMULA NAME CH<sub>2</sub> Molecular C13H12 Mole Ref. Molecular 99.64 Weight 168, 226 Ref Ref Ref. 25, 21 1 dt/dP to F.P. 100% °C/mm <u>•ĸ</u> 25.35 1 g 25°C 649.6 B. P. °C h 0.06064 BP 5 760 mm 264.25 186.73 f 0.03708 5 to 100 1 g' •ĸ 152.08 5 30 30 mm 0.8712 5 125.5 10 5 h' AHm cal/g 25.98 4 80.6 to m AHv cal/g Pressure •ĸ n 25°C 94.97 81.74 mm 25°C 0.0170 o 30 mm 5 5 t<sub>e</sub> 1416. BP 67.78 5 to m۱ te (d, e) Density 5 64.42 •ĸ g/ml 20°C n' 1.00592 63.97 5 1.00192  $\mathbf{d_{4}^{t}}$ AHv/Te 19.08 5 30 0.99792 4 Surface tension d 150 100.67 5 to 1.02192 dynes/cm. 20°C 38.06 • 1 295 25 <u>•c</u> 0.1245 5 ъ -0.0380 á٠ 30 36.98 1 97.57 35.99 40 ı Ref. Index e' 150 0.1041 20°C 1.57527 (P)  $\mathbf{n}_{\mathbf{D}}$ Parachor d g/ml 25 1.57074 20°C 1 415.4 ml/g 30 1.56390 1 c 30 415.7 4 •c tc 494.4 5 40 416.2 "C" 0.7456 4 P<sub>c</sub> mm 22367. 5 5 Sugd. 419.0 MR (Obs.) 55,284 PV/RT Exp. L.1.%/wt. MR (Calc.) 55.032 25°C 1.0000 5 (nD-d/2) 1.07409 4 30 mm 1,0000 Dispersion 0.9203 Dielectric 2,541 1 BP Flash Point °C 0.8961 5 150 to ŧ, 7.16125 Fire Point t<sub>c</sub> В 1944.42 ਜਗ**ਾ**.ਫ M Spec. ΔHc kcal/m 190. 5 Ultra V. ΔHf 1.69830 A\* | 150 to 5 X-Ray Dif. ΔFf B+ 305 °C 1853.7 Infrared ĸ Viscosity Solubility in c centistokes t<sub>x</sub> Acetone to 20 3, 1807 1 Carbon tet. •c 40 2.1351 1 Benzene 1.5499 60 1 A' | 25 to 7.51935 2197.1 Ether 80 1.1896 B' [150 °C 5 n-Heptane  $\overline{\overset{B^{V}}{A^{V}}}$ l 30 211.6 5 702.51 to Ethanol •c | 90 Z. 08643 A1# 25 2.03468 Water 5 (BV) Water in B'+ 150 °C 2092.8 to Ac | 310 to 7,60249 5 (A<sup>V</sup>) •c Bc \_\_tc\_ 2410.9 cp liq. •ĸ Cc 246.8 Cryos. A. 0.02472 •ĸ cp vap. consts. B° c, vap. te °C 294.88 5  $T_{R} = 0.76 T_{c}$ grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: Dow Dow PURIFICATION: LITERATURE REFERENCES:

NAME	Spiropenta	ne				STRUCTURAL FORMU	
						H2C CH2	
Mole % Pur. 99.	Ref. Mol	eculi mula		Molecular Veight 68, 11	4	H <sub>2</sub> C CH <sub>2</sub>	
		Ref.		I.	Ref.		Ref.
F.P. °C F.P. 100%	-107.06	3	dt/dP *C/mm			f to g - K	
B. P. °C 760 mm 100 30	38.977 -9.41 -30.72	3 4 4	25°C BP t <sub>e</sub> 30 mm	0.05709 0.03819 0.03529 0.5333	4 4 5	h   to g'  *K	+-
10	-46.9	5	ΔHm cal/g	22,61	3	h'	
Pressure mm 25°C	457.7 842.0	5 4 5	AHv cal/g 25°C 30 mm BP	96.485 106.63 93.86	3 4 3	m to to	
Density g/ml 20°C dt 25 d4 30	0.755	31	t <sub>e</sub> t <sub>e</sub> (d, e) ΔHv/T <sub>e</sub>	93.32 93.31 20.14	5 5	m' to o' - o'K	
a b	0.7744 -0.0009	5 5	d -30 to e 50 °C d' to	100.967 0.1824	4	Surface tension dynes/cm. 20°C	
Ref. Index n <sub>D</sub> 20°C 25 30	1.41200	3	d g/ml vc ml/g t °C	0.220 4.54 193.6	5 5 5	40 Parachor [P] 20°C 30	
"C"			t <sub>c</sub> *C P <sub>c</sub> mm	25000.	5	40 Sugd.	
MR (Obs.) MR (Calc.) (nD-d/2)	22.43 22.32 1.0345	4 5 4	PV/RT 25°C 30 mm	0.9732 1.0054	4 4	Exp. L.1.%/wt. u. Dispersion	
Dielectric  A -30 to  B 100 °C	2.016 6.91794 1090,589	3 3	BP te tc	0.9625 0.9602 0.265	4 5 5	Flash Point *C Fire Point	
C A* -30 to B* 60 °C	231.165 1.20119 1015.87	3 4 4	ΔHc kcal/m ΔHf ΔFf			M. Spec. Ultra V. X-Ray Dif. Infrared	
K to to to tx to B' to C			Viscosity centistokes			Solubility in Acetone © Carbon tet. © Benzene © Ether © n-Heptane ©	
A <sup>1</sup> to B <sup>1</sup> *C			B <sup>V</sup>   to A <sup>V</sup>   *C (B <sup>V</sup> )  to			Ethanol ∞ Water Water in	
Acl 100 to Bc t <sub>c</sub> *C	8.06920 1975.29 344.44	5 5 5	(A <sup>V</sup> )  °C c <sub>p</sub> liq. °K				
Cryos. A° consts. B°			c <sub>p</sub> vap. K				
t <sub>e</sub> °C	41.983	5	c <sub>v</sub> vap.	L	<u>L</u>	grams/100 grams solv	ent
REFERENC	ES: 1-Dow	2-A	PI 3-Lit. 4-	Calc. from de	t, da		
SOURCE:		L	it.				
PURIFICAT	ION:	L	it.				
LITERATU	RE REFERE	NCE	S: 3 J.A.C.S	72, 4664 (19	50) S	cott, Finke, Hubbard,	
	n, Gross, Wild d Stevenson.	liam	son, Washington	, and Huffman	n; 3¹	J.A.C.S. <u>66</u> , 314 (1944)	

No. 14 Thiacyclobutane STRUCTURAL FORMULA NAME Trimethylene sulfide CH2 - 5 ċн<sub>2</sub> — ċн<sub>2</sub> Mole Ref. Molecular Molecula r C3H6S Weight 74.124 % Pur. 99.95 3 Formula Ref. Ref. Ref F.P. C -73, 25 3 dt/dP f to \*C/mm 25\*C 8 <u>•</u>K 0.3889 B. P. °C h BP 0.04414 4 760 mm 94.969 3 0.03536 5 ſ ŧ. to 100 38.875 3 £' •ĸ 30 14.013 0.6233 4 4 30 mm 10 -14.90 4 P, AHm cal/g 1 -36.20 5 to AHv cal/g m Pressure ٠ĸ 25°C 115.48 31 n mm 25°C 52.61 o 30 mm 118.26 5 te 1007.3 5 BP 104.28 5 m' to Density 1 102.61 5 te (d, e) •ĸ n' g/ml 20°C 1.02000 102.60 5 ۰0 25 1.01472 ď4 AHV/T 20.12 5 30 1.00957 3 Surface tension 120.68 ď 10 to 5 1.04097 36.3 3 dynes/cm. 20°C 1 115 0.1727 •c ъ -0.00105 3 4 30 **3**5.6 ă۰ to 35.0 40 3 Ref. Index •1 1.51020 20°C (P)  $\mathbf{n}_{\mathbf{D}}$ Parachor d g/ml 25 1.50738 3 20°C 178.41 \*c \*C ml/g 30 1.50448 3 30 178.47 4 302.0 5 178.62 40 4 "C" 0.6572 4 P<sub>c</sub> mm 5 176.8 Sugd. MR (Obs.) 21.743 PV/RT Exp. L.1.%/wt. MR (Calc.) 21.824 25°C 0.9999 5 (nD-d/2)1.00020 4 30 mm 1.0000 Dispersion 0.9650 Dielectric BP Flash Point °C 0.9580 t. A -15 to 7,01667 Fire Point B [210 °C 1321.331 M Spec. C 224.513 3 AHc kcal/m Ultra V 25.87 31 ΔHf A\* | -15 to 1.26847 5 X-Ray Dif. 31 ΔFf 16.43 B+ 115 °C 1234, 26 Infrared ĸ Viscosity Solubility in c centistokes Acetone t<sub>x</sub> •c 20 0.640 Carbon tet. •c 25 0.609 3 Bensene 30 0.578 3 to Ether В' נ <u>•c</u> n-Heptane C' B 10 to 393.37 Z.46454 Ethanol Ăv ¦ AI\* 50 °C Water to (BV) Water in B'\* •c to (AV) Ac to Bc •c cp Hq.298 \*K 0. 365 0. 3707 0. 279 3 Cc 3 3' cp vap.328 K Cryos. A. 0.023 3 consts. B. te C c, vap. 104.707 5 grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: API PURIFICATION: API LITERATURE REFERENCES: 3 API Res. Proj. 48; 3' ACS 75, 2795 (1953)

NAME	Diphenylox	ide				STRUCTURAL FORMULA
	Phenyl eth	er				$\bigcirc \circ \bigcirc$
Mole % Pur. 99	Ref. Moi	ecul		Molecular Weight 170, 20		
		Ref.		I	Ref.	Ref
F.P. C	26.79	1	dt/dP			f to
F.P. 100	26.84	1	*C/mm 25*C	517,70	5	g '• <u>K</u>
B. P. °C 760 mm	257.93	1	BP	0.06012	4	h
100	181.3	i	t <sub>e</sub>	0.03711	5	f' to
30 10	147.13 121.	4 5	30 mm	0.8574	4	g' <u>*K</u>
1	77.	5	ΔHm cal/g	22.90	4	m to
Pressure		_	ΔHv cal/g 25°C	94.10	5	n  •K
mm 25°C	0.0213 1402.6	5	30 mm	80.19	5	0
Density		_	· BP	66.16 62.86	5	m' to
g/ml 20°			te (d, e)	62.37	5	』
d <sub>4</sub> 25	1.07043# 1.06608	1 4	ΔHv/T <sub>e</sub>	19.07	5	
	1.09228	4	d 145 to	98.83	5	Surface tension dynes/cm. 20°C 40.05 1
ь	-0.03874	4		0.1267 96.94	5	30   38.82   1
Ref. Inde		1	e'   145 °C	0.1138	5	40 37.73 1
<sup>n</sup> D 25 °	1.56919	i	d <sub>c</sub> g/ml	0.312 3.203	5	Parachor [P] 20°C 398.4 4
50	1.56681	1	vc ml/g tc °C	492.5	5	30 398.5 4
"C"	0.7046	4	P <sub>c</sub> mm	23380.	5	40 399.0 4 Sugd. 398.0 5
MR (Obs. MR (Calc		4 5	PV/RT			Exp. L.1.%/wt.
(nD-d/2)	1.04359	4	25°C . 30 mm	1.0000	5	u.
Dielectric	3.658	1	BP	0.9223	5	Dispersion Flash Point *C
A 145 to	7.09894	1	<b>:</b> -	0.8985 0.245	5	Fire Point
B (325 °C	7_ 1871.92 185.84	1 1	t <sub>c</sub> ΔHc kcal/m		ļ	M. Spec.
A+145 to		5	ΔHf			Ultra V. X-Ray Dif.
B*[300 *9	<u>C</u> 1783.4	5	Vicasian		<del> </del> -	Infrared
c	_		Viscosity centistokes			Solubility in +
ik T			η 20 °C	3.9663 2.4594	1	Acetone Carbon tet.
A'   25 to		5	60	1.7065	i	Bensene Ether
B'  147_°	2115.2	5	B <sub>v</sub> 35 to	1.2716	1	n-Heptane
C' -	206.8	5	B 1 35 to A 85 °C	792.3 3.86114	4	Ethanol Water
A'* 25 to B'*147 *		5	(B <sup>V</sup> )  - to	1	-	Water in
Ac 325 to	7,6329	5	(A <sup>V</sup> )  °C			
Bc tc	2462.1	5	c <sub>p</sub> liq. *K			1
Crime	260.9	5	Р.			
Cryos. A consts. B		1	c <sub>p</sub> vap. *K			
t <sub>e</sub> °C	287.82	4	c <sub>v</sub> vap.	L	<u> </u>	
$T_R = 0.$			# Supercooled			grams/100 grams solvent
			PI 3-Lit. 4-	Calc. from de	t. da	ata 5-Calc, by formula
SOURCE:			ow istillation	······································		
PURIFICA	URE REFERE					
LITERAT	URL REFERE	NCE	<b>5</b> :			

No. 16 STRUCTURAL FORMULA p-Bromo diphenyl oxide NAME p-Bromophenyl phenyl ether 0 Molecular C 12 H9 BrO Molecular Mole % Pur. 99.60 Weight 249.108 Ref. Ref. F.P. \*C 18.72 1 dt/dP f to \*C/mm 25\*C 8 <u>•</u>K 33388. B. P. °C h 0.0666 BP 5 760 mm 310.14 0.03789 ſ t<sub>e</sub> to 100 226.78 4 E' •ĸ 190.65 4 30 30 mm 0.9000 10 5 163. 'n AHm cal/g 15.00 4 118. 5 m to AHv cal/g Pressure •ĸ 25°C 30 mm n 95.16 5 mm 25°C 0.0<sub>3</sub>217 1594.5 a 63.57 5 BP 50.4 m' to Density 46,75 t (d, e) g/ml 20°C n' •ĸ 1.42078 5 45.89 01 1.41555 AHv/T d4 18,65 5 30 1,41030 Surface tension 1 190 84.58 5 1.44170 42.69 dynes/cm. 20°C 1 <u> 133</u>0 °C 0,1102 ь -0.00105 ٦,-30 41.49 1 to 40 40.47 ı Ref. Index •c • 1.60839 20°C P  $\mathbf{n}_{\mathbf{D}}$ Parachor d<sub>c</sub> g/ml 25 1.60619 448.1 20°C vc ml/g 50 1.60135 1 30 448.6 4 40 448.4 4 "C" Pc mm O = 18 Sugd. 448.8 5 MR (Obs.) 60,658 PV/RT Exp. L.1.%/wt. MR (Calc.) (nD-d/2) 59.822 25°C 1.0000 5 u. 0.89800 4 30 mm 1,0000 Dispersion 0.9446 Dielectric BP 5 Flash Point °C 1190 to t. 0.9179 6.68143 Fire Point ŧc <u>1400 °C</u> 1683.84 M Spec. C AHc kcal/m 1 Ultra V ΔHf A\* | 190 to 1.3397 5 X-Ray Dif. ΔFf B\* 360 °C 1594.3 Infrared ĸ Viscosity Solubility in centistokes Acetone 20 °C 5.7395 ا ا ا Carbon tet. •c 40 3.2605 1 Bensene 60 2.1438 1 A' 25 to 7.0093 Ether 1.5426 80 B! (190 °C 1902.7 5 n-Heptane C 153.3 B 5 Ethanol  $\widetilde{\mathbf{A}}^{\mathbf{V}}$ AI+ •c Water Water in B'\* •c (BV) to Ac| to (AV) •c Bc ·c liq. •ĸ c<sub>p</sub> Cc Cryos. A. 0.02210 1 cp vap. °K consts. B° c, vap. t<sub>e</sub> °C 351,13 5 grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc. from det. data 5-Calc. by formula SOURCE: Dow **PURIFICATION:** Distillation LITERATURE REFERENCES:

No. 17 o-Chlorobenzaldehyde STRUCTURAL FORMULA NAME Molecular C7H5ClO Ref. Mole Molecular % Pur. 99.61 Weight 141.567 1 Ref. Ref. Ref. F.P. °C F.P. 100% 12.19 1 dt/dP f to \*C/mm 25\*C 12.39 1 •K g 48.61 5 B. P. \*C h BP 0.05615 760 mm 211.89 1 0.03665 5 ſ١ to ٤, 100 140.40 4 g' <u>•к</u> 30 108.63 5 30 mm 0.7974 10 84, 31 5 h' 22.67 4 AHm cal/g 43.53 m to AHv cal/g Pressure n •ĸ 25°C 94.47 5 mm 25°C 0.2718 5 0 30 mm 85.55 5 1307.6 5 t<sub>e</sub> ВP 72.53 5 m to Density 5 69 72 te (d, e) •K n' g/ml 20°C 1.24829 5 69.43 o'  $d_4^t$ 25 1.24320 AHV/T 19.37 5 30 1.23811 Surface tension 109 99.25 to 5 1.26865 . dynes/cm. 20°C <u>•c</u> 0.1261 5 <u> 236</u> ь -0.00102 30 30,68 à٠ -<sub>25</sub> to 97.14 40 29.68 5 Ref. Index e' 0.1067 1 109 •c 5 <sup>n</sup>D 20°C 1.56620 [P] Parachor d<sub>c</sub> g/ml 25 1.56384 20°C vc ml/g 30 1.56161 30 t<sub>c</sub> 40 "C" 0.59201 4 P<sub>c</sub> mm Sugd. 5 269.1 MR (Obs.) 37.005 37.073 PV/RT Exp. L.1.%/wt. MR (Calc.) 5 25°C 1.0000 5 (nD-d/2) 0.94206 30 mm 1.0000 5 Dispersion Dielectric ΒP Flash Point \*C 0.9222 5 A 109 to t<sub>c</sub> 7.06216 1 Fire Point B (290 °C 1718.10 M. Spec. C 199. AHc kcal/m 1 Ultra V. ΔHf A+ 109 to 1.52895 5 X-Ray Dif. ΔFf B\* 246 °C 1623.5 Infrared Viscosity ĸ Solubility in centistokes Acetone t<sub>k</sub>∫ t<sub>x</sub>∣ to \*C Carbon tet. •c Benzene A' | 25 to 7. 38896 Ether B' 109 °C 1925.0 5 n-Heptane B<sub>v</sub> | 217. to Ethanol •c A'# 25 to Water 1.85246 Water in B'\*109 °C 1823.9 (BV) to Acl (A<sup>V</sup>)| •c Bc c<sub>p</sub> liq. •ĸ Cc Cryos. A. 0.01986 cp vap. •ĸ consts. Bº c, vap. te °C 236.44 # purity 99.39 mole % grams/100 grams solvent REFERENCES: 1-Dow 2-API 3-Lit. 4-Calc, from det, data 5-Calc. by formula SOURCE: Dow Distillation PURIFICATION: LITERATURE REFERENCES:

## Index

Compound	Page No.	Compound	Page No.
A		p-Bromoethylbenzene	155
Acetophenone	353	1-Bromo-2-ethylbenzene	154
m-Aminobenzotrifluoride	344	l-Bromo-4-ethylbensene	155
o-Amino chlorobenzene	342	(2-Bromoethyl)cyclohexane	488
m-Amino chlorobenzene	343	-Bromoethylcyclohexane	488
4-Amino-1, 3-dimethylbenzer	e 341	l-Bromo-2-isopropylbenze	ne 156
p-Amino ethylbenzene	339	l-Bromo-4-isopropylbenze	ne 157
o-Amino ethyl Benzoate	514	l-Bromo-2-methylbenzene	152
m-Amino methylbenzene	337	l-Bromo-4-methylbenzene	153
p-Amino methylbenzene	338	p-Bromophenyl phenyl ethe	r 522
o-Amino methylbenzoate	513	o-Bromostyrene	172
4-Amino-m-xylene	341	o-Bromotoluene	152
n-Amylbenzene	47	p-Bromotoluene	153
2-tert-Amyl-4-methylphenol	301	o-Bromovinylbenzene	172
4-tert-Amyl-2-methylphenol	299	p-Bromovinylbenzene	173
4-tert-Amyl-3-methylphenol	300	N-Butylacetanilide	512
2, 6-di-tert-Amyl-4-methyl- phenol	321	n-Butyl aminobenzene	340
2-n-Amylnaphthalene	223	n-Butylaniline	340
4-n-Amylphenol	298	n-Butylbenzene	25
4-tert-Amylphenol	297	sec-Butylbenzene	27
Aniline	335	tert-Butylbenzene	28
Anime	333	n-Butylcyclohexane	453
		n-Butylcyclopentane	382
		4-tert-Butyl-2, 5-dimethyl- phenol	303
B Benzene	11	4-tert-Butyl-2, 6-dimethyl- phenol	304
Benzenethiol	325	6-tert-Butyl-2, 4-dimethyl-	
Benzophenone	354	phenol	302
Benzotrifluoride	133	6-tert-Butyl-3, 4-dimethyl- phenol	305
Benzyl alcohol	347	4, 6-di-tert-Butyl-2, 3-	
Bromobenzene	150	dimethylphenol	317
o-Bromocumene	156	2-tert-Butyl-4-ethylphenol	307
p-Bromocumene	157	4-tert-Butyl-2-ethylphenol	306
Bromocyclohexane	487	2, 6-di-tert-Butyl-4-ethyl-	320
p-Bromo diphenyl oxide	522	phenol	320
o-Bromoethylbenzene	15 <b>4</b> 5	4,6-di-tert-Butyl-2-ethyl- phenol 25	318

Compound	Page No.		Page No.
4, 6-di-tert-Butyl-3-ethyl-		m-sec-Butyltoluene	59
phenol	319	m-tert-Butyltoluene	65
1-n-Butyl-2-methylbenzene	55	p-n-Butyltoluene	57
l-n-Butyl-3-methylbenzene	56	p-sec-Butyltoluene	60
l-n-Butyl-4-methylbenzene	57	p-tert-Butyltoluene	66
${\bf 1-sec-Butyl-2-methylbenzene}$	58	С	
${\tt l-sec-Butyl-3-methylbenzene}$	59	p-Chloroacetophenone	355
${\tt l-sec-Butyl-4-methylbenzene}$	60	o-Chloroaniline	342
1-tert-Butyl-2-methylbenzene	64	m-Chloroaniline	343
1-tert-Butyl-3-methylbenzene	65	o-Chlorobenzaldehyde	523
l-tert-Butyl-4-methylbenzene	66	Chlorobenzene	134
2-sec-Butyl-4-methylphenol	296	o-Chlorobenzotrichloride	142
2-tert-Butyl-4-methylphenol	295	o-Chlorocumene	148
4, 6-di-tert-Butyl-2-methyl-phenol	311	p-Chlorocumene	149
4, 6-di-tert-Butyl-3-methyl-phenol	312	o-Chloroethylbenzene m-Chloroethylbenzene	144 145
2, 6-di-tert-Butyl-4-methyl-phenol	313	p-Chloroethylbenzene 1-Chloro-2-ethylbenzene	146 144
l-n-Butylnaphthalene	220	1-Chloro-3-ethylbenzene	145
2-n-Butylnaphthalene	221	l-Chloro-4-ethylbenzene	146
2-n-Butylphenol	292	1-Chloro-2-isopropylbenzene	148
3-n-Butylphenol	293	l-Chloro-4-isopropylbenzene	149
4-n-Butylphenol	294	1-Chloro-2-methylbenzene	139
2-tert-Butylphenol	289	2-Chloro-5-nitrobenzotri-	
4-tert-Butylphenol	291	fluoride	508
2,4-di-tert-Butylphenol	308	4-Chloro-3-nitrobenzotri-	500
o-test-Butylphenol	289	fluoride	509
m-tert-Butylphenol	290	p-Chlorophenethyl alcohol	352
p-tert-Butylphenol	291	o-Chlorophenol	324
o-n-Butylphenol	292	p-Chloro-β-phenyl ethyl alcohol	
m-n-Butylphenol	293	o-Chlorostyrene	170
p-n-Butylphenol	294	p-Chlorostyrene	171
2, 4, 6-tri-tert-Butylphenol	322	o-Chlorotoluene	139
o-Butyltoluene	55	2-Chloro-a, a, a-trifluoro-5- nitrotoluene	508
o-sec-Butyltoluene	58	4-Chloro-a, a, a-trifluoro-3-	3.00
o-tert-Bu tyltoluene	64	nitrotoluene	509
m - n - Butwitchene	56	o-Chlorovinylbenzene	170

Compound	Page No.	Compound	Page No.
p-Chlorovinylbenzene	171	l - Cyclohexylundecane	46
o-Cresol	274	Cyclooctatetraene	51
m-Cresol	<b>27</b> 5	Cyclopentane	35
p-Cresol	276	Cyclopentane	33 41
Cumen <b>e</b>	18	l-Cyclopentyldecane	38
Cyclohexane	441	l-Cyclopentyldocosane	40
Cyclohexene	489	l-Cyclopentyldodecane	39
l-Cyclohexyldecane	459	1-Cyclopentyldotriacontane	41
l-Cyclohexyldocosane	471	1-Cyclopentyleicosane	39
l-Cyclohexyldodecane	461	1-Cyclopentyleicosane	39
l-Cyclohexyldotriacontane	481	1-Cyclopentylhentriacontane	40
l-Cyclohexyleicosane	469	1-Cyclopentylheptacosane	40
l-Cyclohexylheneicosane	470	l-Cyclopentylheptadecane	39
l-Cyclohexylhentriacontane	480	1-Cyclopentylheptane	38
l-Cyclohexylheptacosane	476	1-Cyclopentylhexacosane	40
l-Cyclohexylheptadecane	466	1-Cyclopentylhexadecane	39
l-Cyclohexylheptane	456	1-Cyclopentylhexane	38
l -Cyclohexylhexacosane	475	1-Cyclopentylhexatriacontane	41
l -Cyclohexylhexadecane	465	1-Cyclopentylnonacosane	40
l-Cyclohexylhexane	455	1-Cyclopentylnonacosane  1-Cyclopentylnonadecane	39
l-Cyclohexylhexatriacontane	485	1-Cyclopentylnonadecane	38
l -Cyclohexylnonacosane	478	1-Cyclopentylnonane  1-Cyclopentyloctacosane	40
l-Cyclohexylnonadecane	468	1-Cyclopentyloctacosane  1-Cyclopentyloctadecane	39
l -Cyclohexylnonane	458	1-Cyclopentyloctane	38
l-Cyclohexyloctacosane	477	• •	40
l-Cyclohexyloctadecane	467	l-Cyclopentylpentacosane	39
l-Cyclohexyloctane	457	1-Cyclopentylpentadecane	- •
l-Cyclohexylpentacosane	474	1-Cyclopentylpentane	38
l-Cyclohexylpentadecane	464	l-Cyclopentylpentatria- contane	41
l-Cyclohexylpentatriacontane	484	1-Cyclopentyltetracosane	40
l-Cyclohexyltetracosane	473	1-Cyclopentyltetradecane	39
l-Cyclohexyltetradecane	463	1-Cyclopentyltetratriacontane	41
l-Cyclohexyltetratriacontane	483	l-Cyclopentyltriacontane	40
l-Cyclohexyltriacontane	479	l-Cyclopentyltricosane	40
-Cyclohexyltricosane	472	1-Cyclopentyltridecane	39
l-Cyclohexyltridecane	462	l-Cyclopentyltritriacontane	41
l-Cyclohexyltritriacontane	482	1-Cyclopentylundecane	38

Compound	Page No.	Compound	Page No.
D		3, 4-Diethyltoluene	89
cis-Decahydronaphthalene	263	3,5-Diethyltoluene	90
trans-Decahydronaphthalene	264	2-Diisobutyl-4-methylphenol	316
n-Decylbenzene	105	4-Diisobutyl-2-methylphenol	314
n-Decylcyclohexane	459	4-Diisobutyl-3-methylphenol	315
n-Decylcyclopentane	388	4-Diisobutylphenol	309
l-n-Decylnaphthalene	232	o-Diisopropylbenzene	99
2-n-Decylnaphthalene	233	m-Diisopropylbensene	100
o-Dibromobenzene	151	p-Diisopropylbenzene	101
1, 2-Dibromobenzene	141	l, 2-Diisopropylbenzene	99
o-Dichlorobenzene	135	1,3-Diisopropylbenzene	100
m-Dichlorobenzene	136	l, 4-Diisopropylbensene	101
p-Dichlorobenzene	137	1,2-Dimethylbenzene	14
1,2-Dichlorobenzene	135	1,3-Dimethylbenzene	15
1,3-Dichlorobenzene	136	l, 4-Dimethylbenzene	16
l, 4-Dichlorobenzene	137	2, 4-Dimethylbenzenethiol	332
3, 4-Dichlorobenzotrichlorid	e 143	2,5-Dimethylbenzenethiol	333
2,4-Dichlorobenzyl chloride	141	2, 3-Dimethyl cumene	79
3, 4-Dichloro-1-methylbenze	ne 140	2,4-Dimethyl cumene	82
3, 4-Dichlorotoluene	140	2,5-Dimethyl cumene	84
2,5-Dichloro-p-xylene	147	2, 6-Dimethyl cumene	81
o-Diethylbenzene	35	3, 4-Dimethyl cumene	80
m-Diethylbenzene	36	3,5-Dimethyl cumene	83
p-Diethylbenzene	37	l, l-Dimethylcyclohexane	444
l, 2-Diethylbenzene	35	l, cis-2-Dimethylcyclohexane	445
1,3-Diethylbenzene 1,4-Diethylbenzene	36	l, trans-2-Dimethylcyclo- hexane	446
2, 3-Diethyl-1-methylbenzen	37 e 85	1, cis-3-Dimethylcyclohexane	447
2, 4-Diethyl-1-methylbensen		1, trans-3-Dimethylcyclo-	440
2,5-Diethyl-1-methylbensen	-	hexane	448
2, 6-Diethyl-1-methylbensen		l, cis-4-Dimethylcyclohexane	449
3, 4-Diethyl-1-methylbensen		l, trans-4-Dimethylcyclo- hexane	450
3,5-Diethyl-l-methylbenzen	e 90	1,2-Dimethylcyclohexene	496
2,3-Diethyltoluene	85	1, 3-Dimethylcyclohexene	497
2, 4-Diethyltoluene	86	l, 4-Dimethylcyclohexene	498
2,5-Diethyltoluene	87	1,5-Dimethylcyclohexene	499
2, 6=Diethyltoluene	88	1,6-Dimethylcyclohexene	500

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2, 3-Dimethylcyclohexene	500	2, 6-Dimethylphenol	280
2, 4-Dimethylcyclohexene	499	3, 4-Dimethylphenol	281
3, 3-Dimethylcyclohexene	501	3,5-Dimethylphenol	282
4, 4-Dimethylcyclohexene	502	(1, 1-Dimethylpropyl)benzene	52
l, l-Dimethylcyclopentane	362	(1, 2-Dimethylpropyl)benzene	53
cis-1, 2-Dimethylcyclopentane	363	1,2-Dimethyl-3-n-propyl-	
trans-1, 2-Dimethylcyclopentane	364	benzene	73
cis-1, 3-Dimethylcyclopentane	365	1,2-Dimethyl-4-n-propyl- benzene	74
trans-1, 3-Dimethylcyclopentane	366	1,3-Dimethyl-2-n-propyl-	1.2
1,2-Dimethylcyclopentene	422	benzene	75
1, 3-Dimethylcyclopentene	423	1,3-Dimethyl-4-n-propyl-	
1, 4-Dimethylcyclopentene	424	benzene	76
1,5-Dimethylcyclopentene	425	1,3-Dimethyl-5-n-propyl- benzene	77
3, 3-Dimethylcyclopentene	426	1,4-Dimethyl-2-n-propyl-	• • •
4, 4-Dimethylcyclopentene	427	benzene	78
1,10-Dimethyl-(cis-Decahydro)- naphthalene	270	(2, 2-Dimethylpropyl)benzene 1, cis-2-Dimethyl-1, 2, 3, 4-	54
1, 10-Dimethyl-(trans-Deca- hydro)naphthalene	271	Tetrahydronaphthalene 1, cis-3-Dimethyl-1, 2, 3, 4-	249
1,2-Dimethyl-3-isopropylbenzen	e 79	Tetrahydronaphthalene	250
l, 2-Dimethyl-4-isopropylbenzen	e 80	1, cis-4-Dimethyl-1, 2, 3, 4-	
1,3-Dimethyl-2-isopropylbenzen	e 81	Tetrahydronaphthalene	251
1, 3-Dimethyl-4-isopropylbenzen	e 82	1, 1-Dimethyl-1, 2, 3, 4-Tetra-	
1,3-Dimethyl-5-isopropylbenzen	e 83	hydronaphthalene	248
1,4-Dimethyl-2-isopropylbenzen	e 84	1,5-Dimethyl-1,2,3,4-Tetra- hydronaphthalene	254
l, 2-Dimethylnaphthalene	208	2, cis-3-Dimethyl-1, 2, 3, 4-	
1,3-Dimethylnaphthalene	209	Tetrahydronaphthalene	253
l, 4-Dimethylnaphthalene	210	2, 2-Dimethyl-1, 2, 3, 4-Tetra-	
1,5-Dimethylnaphthalene	211	hydronaphthalene	252
l, 6-Dimethylnaphthalene	212	2, 5-Dimethyl-1, 2, 3, 4-Tetra- hydronaphthalene	255
1,7-Dimethylnaphthalene	213	2, 6-Dimethyl-1, 2, 3, 4-Tetra-	
l, 8-Dimethylnaphthalene	214	hydronaphthalene	256
2, 3-Dimethylnaphthalene	215	2,7-Dimethyl-1,2,3,4-Tetra-	
2,6-Dimethylnaphthalene	216	hydronaphthalene	257
2,7-Dimethylnaphthalene	217	2,8-Dimethyl-1,2,3,4-Tetra- hydronaphthalene	258
2, 3-Dimethylphenol	277	nyur ona pumarene	250
2, 4-Dimethylphenol	278	5, 6-Dimethyl-1, 2, 3, 4-Tetra-	
2 5-Dimethylphenol	279	hydronaphthalene	259

Compound	Page No.	Compound	Page No.
5,7-Dimethyl-1,2,3,4-Tetra-	- 4 -	p-Ethyl aniline	339
hydronaphthalene	260	Ethyl anthranilate	514
5, 8-Dimethyl-1, 2, 3, 4-Tetra- hydronaphthalene	261	Ethylbenzene	13
6,7-Dimethyl-1,2,3,4-Tetra-		2-Ethylbenzenethiol	329
hydronaphthalene	262	3-Ethylbenzenethiol	330
2, cis-5-Dimethylthia cyclopenta	ane 434	4-Ethylbenzenethiol	331
2, trans-5-Dimethylthiacyclo-		o-Ethyl cumene	70
pentane	435	m-Ethyl cumene	71
2, 2-Dimethylthiacyclopropane	440	p-Ethyl cumene	72
2, 2-Dimethylthiirane	440	Ethylcyclohexane	443
2, 3-Dimethylthiophene	188	l-Ethylcyclohexene	493
2, 4-Dimethylthiophene	189	3-Ethylcyclohexene	494
2,5-Dimethylthiophene	190	4-Ethylcyclohexene	495
3, 4-Dimethylthiophene	191	Ethylcyclopentane	361
2,4-Dimethylthiophenol	332	l-Ethylcyclopentene	419
2,5-Dimethylthiophenol	<b>3</b> 33	3-Ethylcyclopentene	420
Diphenyl ether	521	4-Ethylcyclopentene	421
Diphenylketone	354	9-Ethyl-(cis-Decahydro-	2/0
Diphenylmethane	518	naphthalene)	268
Diphenyloxide	521	9-Ethyl-(trans-Decahydro- naphthalene)	269
n-Docosylbenzene	117	2-Ethyl-1, 3-dimethylbenzene	38
n-Docosylcyclohexane	471	2-Ethyl-1, 4-dimethylbenzene	39
n-Docosylcyclopentane	400	3-Ethyl-1, 2-dimethylbenzene	40
n-Dodecylbenzene	107	4-Ethyl-1, 2-dimethylbenzene	41
n-Dodecylcyclohexane	461	4-Ethyl-1, 3-dimethylbenzene	42
n-Dodecylcyclopentane	390	5-Ethyl-1, 3-dimethylbenzene	43
l-n-Dodecylnaphthalene	236	Ethylene sulfide	437
2-n-Dodecylnaphthalene	237	l-Ethyl-2-isopropylbenzene	70
n-Dotria contylbenzene	127	1-Ethyl-3-isopropylbenzene	71
n-Dotriacontylcyclohexane	481	l-Ethyl-4-isopropylbenzene	72
n-Dotriacontylcyclopentane	410	2-Ethyl-1-methylbenzene	22
Durene	46	3-Ethyl-1-methylbenzene	23
		4-Ethyl-1-methylbenzene	24
		1-Ethyl-1-methylcyclopentane	369
E		cis-1-Ethyl-2-methylcyclo-	307
n-Eicosylbenzene	115	pentane	370
n-Eicosylcyclohexane	469	trans-1-Ethyl-2-methylcyclo-	
n-Eicosylcyclopentane	398	pentane	371

Compound	Page No.	Compound	Page No.
cis-1-Ethyl-3-methylcyclo- pentane	372	2-Ethylthiacyclopentane	432
trans-1-Ethyl-3-methylcyclo-		3-Ethylthiacyclopentane	433
pentane	373	2-Ethylthiacyclopropane	439
2-Ethyl-3-methylthiophene	196	2-Ethyl-(lthiaethyl)-benzene	182
3-Ethyl-2-methylthiophene	197	o-Ethyl-(l-thiaethyl)-benzene	182
4-Ethyl-2-methylthiophene	198	2-Ethylthiirane	439
5-Ethyl-2-methylthiophene	199	2-Ethylthiophene	186
1-Ethylnaphthalene	206	3-Ethylthiophene	187
2-Ethylnaphthalene	207	o-Ethylthiophenol	329
o-Ethylnitrobenzene	346	m-Ethylthiophenol	330
o-Ethylphenethyl alcohol	350	p-Ethylthiophenol	331
p-Ethylphenethyl alcohol	351	o-Ethyltoluene	22
2-Ethylphenol	283	m-Ethyltoluene	23
3-Ethylphenol	284	p-Ethyltoluene	24
4-Ethylphenol	285	2-Ethyl-1, 3, 5-trimethylbensene	91
o-Ethylphenol	283	3-Ethyl-1, 2, 4-trimethylbenzene	92
m-Ethylphenol	284	4-Ethyl-1, 2, 3-trimethylbenzene	93
p-Ethylphenol	285	5-Ethyl-1, 2, 3-trimethylbenzene	94
o-Ethyl-β-phenyl ethyl		5-Ethyl-1, 2, 4-trimethylbenzene	95
alcohol	350	6-Ethyl-1, 2, 4-trimethylbensene	96
p-Ethyl-β-phenyl ethyl alcohol	351	m-Ethylvinylbenzene	166
		p-Ethylvinylbenzene	167
Ethyl phenyl ketone	356	2-Ethyl-m-xylene	38
Ethyl phenyl sulfide	176	2-Ethyl-p-xylene	39
(1-Ethylpropyl)benzene	49	3-Ethyl-o-xylene	40
1-Ethyl-2-n-propylbenzene	67	4-Ethyl-o-xylene	41
1-Ethyl-3-n-propylbenzene	68	4-Ethyl-m-xylene	42
1-Ethyl-4-n-propylbenzene	69	5-Ethyl-m-xylene	43
m-Ethylstyrene	166		
p-Ethylstyrene	167	F	
1-Ethyl-1, 2, 3, 4-Tetra- hydronaphthalene	244	Fluorobenzene	132
2-Ethyl-1, 2, 3, 4-Tetra- hydronaphthalene	245	Furan Furfurane	516 516
5-Ethyl-1, 2, 3, 4-Tetra- hydronaphthalene	246		
6-Ethyl-1, 2, 3, 4-Tetra- hydronaphthalene	247	H Hemimellitene	19
	671	nemmemitene	•

Compound	Page No.	Compound	Page No.
n-Heneicosylcyclohexane	470	Isobutylbenzene	26
n-Heneicosylcyclopentane	399	l-Isobutyl-2-methylbenzene	61
l-Hentriacontane	126	l-Isobutyl-3-methylbenzene	62
n-Hentriacontylbenzene	126	l-Isobutyl-4-methylbenzene	63
n-Hentriacontylcyclohexane	480	o-Isobutyltoluene	61
n-Hentriacontylcyclopentane	409	m-Isobutyltoluene	62
n-Heptacosylbenzene	122	p-Isobutyltoluene	63
n-Heptacosylcyclohexane	476	Isodurene	45
n-Heptacosylcyclopentane	405	Isopentylbenzene	51
n-Heptadecylbenzene	112	Isopropenylbenzene	160
n-Heptadecylcyclohexane	466	Isopropylbenzene	18
n-Heptadecylcyclopentane	395	Isopropylcyclohexane	452
n-Heptylbenzene	102	Isopropylcyclopentane	368
n-Heptylcyclohexane	456	p-Isopropyl-a-methylstyrene	169
n-Heptylcyclopentane	385	Isopropyl phenyl sulfide	179
l-n-Heptylnaphthalene	226	p-Isopropylstyrene	168
2-n-Heptylnaphthalene	227	2-Isopropylthiophene	194
	486	3-Isopropylthiophene	195
n-Hexacosylbenzene	121	o-Isopropyltoluene	
n-Hexacosylcyclohexane	475	(o-Cymene)	32
n-Hexacosylcyclopentane	404	m-Isopropyltoluene (m-Cymene)	33
n-Hexadecylbenzene	111	p-Isopropyltoluene	33
n-Hexadecylcyclohexane	465	(p-Cymene)	34
n-Hexadecylcyclopentane	394	p-Isopropylvinylbenzene	168
<b>Y</b> -Hexane	486		
n-Hexatriacontylbenzene	131	M	
n-Hexatriacontylcyclohexane	485	Mesitylene	21
n-Hexatria contyl cyclopentane	414	Methyl anthranilate	513
n-Hexylbenzene	98	Methylbenzene	12
n-Hexylcyclohexane	455	2-Methylbenzenethiol	326
n-Hexylcyclopentane	384	3-Methylbenzenethiol	327
l-n-Hexylnaphthalene	224	4-Methylbenzenethiol	328
2-n-Hexylnaphthalene	225	Methyl benzoate	357
p-tert-Hydroxybenzene	297	a-Methyl benzyl alcohol	348
		(1-Methylbutyl)benzene	48
I		(2-Methylbutyl)benzene	50
Iodobenzene	158	Methylcyclohexane	442

Compound	Page No.	Compound	Page No.
l-Methylcyclohexene	490	2-Methyl-1, 2, 3, 4-Tetra- hydronaphthalene	241
3-Methylcyclohexene 4-Methylcyclohexene	491 492	5-Methyl-1, 2, 3, 4-Tetra-	
Methylcyclopentane	360	hydronaphthalene	242
1-Methylcyclopentene	416	6-Methyl-1, 2, 3, 4-Tetra- hydronaphthalene	243
3-Methylcyclopentene	417	2-Methylthiacyclohexane	504
4-Methylcyclopentene	418	3-Methylthiacyclohexane	505
l-Methyl-(trans-Decahydro-		4-Methylthiacyclohexane	506
naphthalene)	265	2-Methylthiacyclopentane	430
9-Methyl-(cis-Decahydro-	2//	3-Methylthiacyclopentane	431
naphthalene)	266	2-Methylthiacyclopropane	438
9-Methyl-(trans-Decahydro- naphthalene)	267	2-Methylthiirane	438
l-Methyl-2-isopropylbenzene	32	p-Methyl-(1-thioethyl)-	
l-Methyl-3-isopropylbenzene	33	benzene	177
l-Methyl-4-isopropylbenzene	34	4-Methyl-(l-thioethyl)- benzene	177
l-Methylnaphthalene	204	2-Methylthiophene	184
2 - Methylnaphthalene	205	3-Methylthiophene	185
2-Methylphenol	274	o-Methylthiophenol	326
m-Methylphenol	275	m-Methylthiophenol	327
o-Methylphenol	276	p-Methylthiophenol	328
2-Methyl-l-phenylbutane	50	(2-Methyl-1-thiopropyl)-	
2-Methyl-2-phenylbutane	52	benzene	179
3-Methyl-l-phenylbutane	51	3-Methyl-(1-thiopropyl)-	100
3-Methyl-2-phenylbutane	53	benzene	180
Methyl phenyl ketone	353	4-Methyl-(1-thiopropyl)- benzene	181
Methyl phenyl sulfide	175	m-Methyl-(1-thiopropyl)-	
l-Methyl-2-propylbenzene	29	benzene	180
l-Methyl-3-propylbenzene	30	p-Methyl-(1-thiopropyl)-	181
l-Methyl-4-propylbenzene	31	benzene	162
z-Methylstyrene	160	o-Methylvinylbenzene	
3-Methylstyrene	161	m-Methylvinylbenzene	163
o-Methylstyrene	162	p-Methylvinylbenzene	164
m-Methylstyrene	163	Morpholine	515
p-Methylstyrene	164		
l-Methyl-1, 2, 3, 4-Tetrahydro		N	202
naphthalene	240	Naphthalene	203

Compound	Page No.	Compound	Page No.
Neopentylbenzene	54	n-Pentatriac ontylbenzene	130
Nitrobenzene	345	n-Pentatria contyl cyclo-	
m-Nitrobenzotrifluoride	507	hexane	484
n-Nonacosylbenzene	124	n-Pentatriacontylcyclo- pentane	413
n-Nonacosylcyclohexane	478	n-Pentylbenzene	47
n-Nonacosylcyclopentane	407	n-Pentylcyclohexane	454
n-Nonadecylbenzene	114	n-Pentylcyclopentane	383
n-Nonadecylcyclohexane	468	l-n-Pentylnaphthalene	222
n-Nonadecylcyclopentane	397	2-n-Pentylnaphthalene	223
n-Nonylbenzene	104	Phenethyl alcohol	349
n-Nonylcyclohexane	458	p-Phenetidine	511
n-Nonylcyclopentane	387	Phenol	273
l-n-Nonylnaphthalene	230	l-Phenyl butane	27
2-n-Nonylnaphthalene	231	l-Phenyldecane	105
		l-Phenyldocosane	117
0		l-Phenyldodecane	107
n-Octacosylbenzene	123	l-Phenyldotriacontane	127
n-Octacosylcyclohexane	477	l-Phenyleicosane	115
n-Octacosylcyclopentane	406	a-Phenyl ethyl alcohol	348
n-Octadecylbenzene	113	β-Phenyl ethyl alcohol	349
n-Octadecylcyclohexane	467	Phenyl fluoride	132
n-Octadecylcyclopentane	396	l-Phenylheneicosane	116
n-Octylbensene	103	l-Phenylheptacosane	122
n-Octylcyclohexane	457	l -Phenylheptadecane	112
m-Octylcyclopentane	386	l-Phenylheptane	102
l-n-Octylnaphthalene	228	l-Phenylhexacosane	121
2-n-Octylnaphthalene	229	l -Phenylhexadecane	111
p-tert-Octylphenol	323	l-Phenylhexane	98
		l -Phenylhexatriacontane	131
P		Phenylhydrazine	510
n-Pentacosylbenzene	120	2-Phenyl-2-methylpropane	28
n-Pentacosylcyclohexane	474	l-Phenylnonacosane	124
n-Pentacosylcyclopentane	403	l-Phenylnonadecane	114
n-Pentadecylbenzene	110	l-Phenylnonane	104
n-Pentadecylcyclohexane	464	l-Phenyloctacosane	123
n-Pentadecylcyclopentane	393	l-Phenyloctadecane	113
Pentamethylbensene	97	l-Phenyloctane	103

Compound	Page No.	Compound	Page No.
1-Phenylpentacosane	120	5-Propyl-m-xylene	77
l-Phenylpentadecane	110	Pseudocumene	20
2-Phenylpentane	48		
3-Phenylpentane	49	S	
l -Phenylpentatriacontane	130	Spiropentane	519
l-Phenyltetracosane	119	Styrene	159
1-Phenyltetradecane	109		
1-Phenyltetratriacontane	129	T	
l-Phenyltriacontane	125	o, a, a, a-Tetrachlorotoluene	142
l-Phenyltricosane	118	n-Tetracosylbenzene	119
l-Phenyltridecane	108	n-Tetracosylcyclohexane	473
l -Phenyltritriacontane	128	n-Tetracosylcyclopentane	402
1-Phenylundecane	106	n-Tetradecylbenzene	109
Prehnitene	44	n-Tetradecylcyclohexane	463
Propenylbenzene	161	n-Tetradecylcyclopentane	392
Propiophenone	<b>35</b> 6	trans-Tetrahydro-2, 5-dimethyl-	
n-Propylbenzene	17	thiophene	435
n-Propylcyclohexane	451	Tetrahydro-p-isoxazine	515
n-Propylcyclopentane	367	Tetrahydro-2-methyl-1-thiapyrar	
l-n-Propylnaphthalene	218	Tetrahydro-3-methyl-1-thiapyrar	
2-n-Propylnaphthalene	219	Tetrahydro-4-methyl-1-thiapyrar	
2-Propylphenol	286	Tetrahydro-2-methylthiophene	430
3-Propylphenol	287	Tetrahydro-3-methylthiophene	431
o-Propylphenol	286	1, 2, 3, 4-Tetrahydronaphthalene	239
m-Propylphenol	287	Tetrahydrothiophene	429
p-Propylphenol	288	1, 2, 3, 4-Tetramethylbenzene	44
n-Propyl phenyl sulfide	178	1, 2, 3, 5-Tetramethylbenzene	45
2-Propylthiophene	192	1, 2, 4, 5-Tetramethylbenzene	46
3-Propylthiophene	193	p-(1,1,3,3-Tetramethylbutyl)- phenol	323
o-Propyltoluene	29	n-Tetratriacontylbenzene	129
m-Propyltoluene	30	n-Tetratriacontylcyclohexane	483
p-Propyltoluene	31	n-Tetratriacontylcyclopentane	412
2-Propyl-m-xylene	75	(1-thiabutyl)-benzene	178
2-Propyl-p-xylene	78	Thiacyclobutane	520
3-Propyl-o-xylene	73	Thiacyclohexane	503
4-Propyl-o-xylene	74	Thia cyclopentane	429
4-Propyl-m-xylene	76	Thiacyclopropane	437

Compound	Page No.	Compound	Page No.
(l-Thia ethyl)-bensene	175	1, cis-2, trans-4-Tri-	
(l-Thiapropyl)-benzene	176	methylcyclopentane	380
Thiophene	183	l, trans-2, cis-3-Tri- methylcyclopentane	378
Thiophenol	325	1, trans-2, cis-4-Trimethyl-	
Toluene	12	cyclopentane	381
o-Toluidine	336	Trimethylene sulfide	520
m-Toluidine	337	2, 3, 4-Trimethylthiophene	200
p-Toluidine	338	2, 3, 5-Trimethylthiophene	201
n-Triac ontylbensene	125	n-Tritriacontylbensene	128
n-Triacontylcyclohexane	479	n-Tritriacontylcyclohexane	482
n-Triacontylcyclopentane	408	n-Tritriacontylcyclopentane	411
2, 4, 6-Triallylphenol	310		
l, 2, 4-Trichlorobenzene	138	Ū	
a, 2, 4-Trichlorotoluene	141	n-Undecyclbenzene	106
n-Tricosylbenzene	118	n-Undecyclopexane	460
n-Tricosylcyclohexane	472	n-Undecylcyclopentane	389
n-Tšicosylcyclopentane	401	l-n-Undecylnaphthalene	234
n-Tridecylbenzene	108	2-n-Undecylnaphthalene	235
n-Tridecylcyclohexane	462		
n-Tridecylcyclopentane	391		
e,e,a-Trifluoro-m-		V	
nitrotoluene	507	Vinylbensene	159
a, a, a-Trifluorotoluene	133	m- and p-Vinyltoluene	165
1, 2, 3-Trimethylbenzene	19		
1,2,4-Trimethylbensene	20	x	
1,3,5-Trimethylbenzene	21	o-Xylene	14
1, 1, 2-Trimethylcyclo- pentane	374	m-Xylene	15
1, 1, 3-Trimethylcyclo-	314	p- <b>Xylene</b>	16
pentane	375	2, 3-Xylenol	277
l, cis-2, cis-3-Trimethyl-		2,4-Xylenol	278
cyclopentane	376	2,5-Xylenol	279
l, cis-2, trans-3-Trimethyl- cyclopentane	377	2,6-Xylenol	280
l, cis-2, cis-4-Trimethyl-	311	3, 4-Xylenol	281
cyclopentane	3 <b>79</b>	3,5-Xylenol	282